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THE NATURE OF INTEREST AND THE  
CAUSES OF ITS FLUCTUATIONS

SUMMARY

I. Capital defined as wealth produced by labor and destined to satisfy wants in the future, 547. — The possibility of interest due to the fact that capital saves labor, 550. — Concrete illustration of the saving, 551. — II. Illustration of the circumstances which may affect the rate of interest under hypothetical conditions, the main conclusions of the present essay being suggested. — Capital quantitatively expressed in terms of labor multiplied by the time intervening between labor and enjoyment, 553. — III. Circumstances affecting the demand for capital: (a) The opening of new lands, 557. — (b) Inventions, 560. — Under certain conditions the ultimate effect of these circumstances is opposite to their immediate effect, 561. — (c) Variations in the aggregate consumption of society, 563. — Effect of such variations on the supply of capital, 564. — Supply of capital also affected by the quantity of labor expended, 567; which for a given population depends on the amount of leisure enjoyed and on the efficiency of labor, 568. — Conclusion on ultimate causes permanently affecting the rate of interest. — Why capital has always been able to earn interest, 569.

I

Is waiting a separate factor of production? It is so regarded by Professor Cassel,<sup>1</sup> and the same view seems to be implied in many other theories of interest. To the present writer, however, it seems doubtful whether it should be regarded as a conscious process at all. No

<sup>1</sup> *The Nature and Necessity of Interest*, chap. II, § 4.

doubt with some people it is; but others decide on their expenditure first, and then save the balance of their income. To regard waiting in all cases as a deliberate act seems to assume that everybody decides first how much he must save, and then spends what is left. At any rate, it seems possible to account for interest and its fluctuations without assuming a peculiar kind of human exertion on the action of which all saving is dependent.<sup>1</sup>

Economic literature is amazingly rich in definitions of capital, and the first task of a writer on interest must be to decide which he will adopt. I have chosen that which is expressed by Professor J. Shield Nicholson as follows: "Capital is wealth set aside for the satisfaction — directly or indirectly — of future needs,"<sup>2</sup> — exclusive, it is necessary to add, of the gifts of nature. This definition does not class goods destined for immediate consumption as capital, altho it does those which are in the hands of their ultimate consumers if of a durable character or in any sense destined to satisfy future wants.

Apart from the question as to whether capital includes land, it might be thought that this conception of capital is practically the same as that of Professor Fisher, for whom capital is practically synonymous with wealth.<sup>3</sup> All goods satisfy future wants. When a man sits down to dinner, the wants which he is about to satisfy are still future. The only difference is one of degree.

All this is true. Yet a difference in degree may be so great as to amount to a difference in kind. For illustration take the concepts of utility and value. Everything which has utility does not possess value; but everything which has value must possess utility. Some

<sup>1</sup> See F. H. Knight, "Neglected Factors in the Theory of Normal Interest," vol. xxx of this Journal, pp. 284-90, where the importance of "time-preference" is questioned.

<sup>2</sup> Principles of Political Economy, Bk. I, chap. vi, § 4.

<sup>3</sup> The Nature of Capital and Income, chap. IV, § 2.

things, such as water, are on the border line, possessing value in one place and not in another. There is in fact no hard and fast distinction between utilities which do and which do not possess value. Yet no one says that value is synonymous with utility.

The distinction which I propose to make between capital and wealth is analogous. All capital is wealth, but all wealth is not capital. The element of time is essential to the latter. If wealth consists of things which are scarce and which satisfy wants, capital will consist of things which are scarce and which will satisfy wants after an interval of time. Wealth is measured in terms of value; capital might be measured in terms of value multiplied by time. The significance of this conception will appear more fully in what follows. An important modification is required to make it generally applicable; but it may be here remarked that, if a business man is trying to decide whether a certain undertaking will be profitable or not, he must find out not only how much outlay will be necessary but also the time which must intervene between the outlay and the attainment of the final result — how long his capital will be locked up, in other words.

The line, then, which may be drawn between capital and wealth is this: if either because the value is so small or the time so short that the interest which is or might be paid is negligible, the thing in question is wealth, but not capital; if the interest is worth taking into account, the thing is capital. In fact, capital might be defined as wealth which yields or could be made to yield interest.

It is hardly necessary to point out that any concrete commodity could be made in effect to yield interest if borrowers are willing to pay for its use during a certain time more than must be set aside to cover depreciation. In strict logic, of course, everything which will satisfy a

*How about land?*

want or yield a service in the future should be counted as capital, no matter how small the value or how short the time. The present value of any future service is theoretically different from the value of that service at the moment when it is being rendered, by a sum equal to what the discount on its value would be, if it were discounted at the current rate of interest. In theory, therefore, if this sum exists at all, the right to exact the service in question must be classed as capital. In practice, however, the distinction between capital and wealth is obvious enough, for if this sum were negligible the right in question would fall into the latter category only. For theoretical purposes, it must be admitted that the definition of capital here adopted is scarcely distinguishable from Professor Fisher's, except in excluding the gifts of nature. I believe that the present conception of capital will not be found to differ from that presented by Professor Taussig, who distinguishes between capital and land,<sup>1</sup> and points out that, for some purposes of economic analysis, producers' and consumers' capital are similar,<sup>2</sup> and that the difference between them "is one as to time when satisfaction or utility accrues."<sup>3</sup>

The subject of the present essay is the normal, not the market rate of interest. "Appreciation and Interest," and all fluctuations due to changes in the value of money, are left out of account. The element of risk, also, will be assumed to be absent.

While a certain amount of labor might be done for pleasure labor is, as a rule, disagreeable and is only expended with some ulterior object in view. Now the

<sup>1</sup> *Principles of Economics*, chap. XXXVIII, § 1; chap. XLVI.

<sup>2</sup> Chap. V, § 2; chap. XI, §§ 3, 4.

<sup>3</sup> Chap. V, § 2, note; cf. chap. XV, § 4.

only possible object of labor, from the point of view of economics at any rate, is the satisfaction of wants.

In general, however, everyone desires to reap the reward of his labor as soon as possible. The existence of interest would be alone sufficient to account for this; for if goods can be exchanged, and if present goods are worth more than future goods, the former would always be preferred, for every man prefers a greater to a less. If, however, a person could be supposed ignorant of the existence or possibility of interest, it would be necessary to account for his undoubted preference for present over future goods on psychological grounds, as Böhm-Bawerk and his followers do. But this simple preference is all that we need postulate. We shall find it unnecessary to attempt to measure it, or to assume that it has ever been greater than it is at present, altho, as John Rae has so well shown,<sup>1</sup> we should be amply justified in doing so if it were necessary.

In spite of the impatience which thus is natural to human beings, some labor is always being expended in providing for wants in the future — sometimes in the very distant future. If both labor and waiting for the result of labor are disagreeable, this can only be explained by the fact that in the long run labor is saved. It is found that wants can be satisfied with less labor in the aggregate if part of the labor is applied to preparatory operations, and the whole is spread over a considerable time, than would be necessary if all the labor were applied directly to the satisfaction of immediate wants.

“There being need of a given amount of food, it can be obtained with less expenditure of labour, if the labour is mostly performed several months before the supply becomes necessary, than if nothing is done until the day is at hand on which there is a demand for food. If the

<sup>1</sup> *New Principles of Political Economy*, Bk. II, chap. vii.

labour is delayed until the time arrives, the only remaining resources for acquiring nourishment are hunting, fishing, berrying and the like; and of these the supply is very limited and much work is required to obtain a supply from these resources if any considerable quantity is required. On the other hand, if land is ploughed, prepared and sowed to wheat several months before there is a scarcity of food, a much larger amount of food is produced, and at a much less expenditure of labour. Again, a supply of cloth being essential, a much larger quantity can be obtained for the same labour if, previous to the time when it is required, a part of the labour has been employed to prepare machines on which the cloth can be woven."<sup>1</sup>

Now, capital consists of things which are produced by labor, and which satisfy wants after an interval of time; and all labor has for its object the satisfaction of wants; therefore, labor which will not satisfy wants until a future time is, in reality, devoted to the production of capital. What the accumulator of capital does for society is to enable — or compel — people to labor for the sake of future benefits, whereas without him they would be inclined to devote all their labor to the satisfaction of immediate wants. The final result of his intervention is that society has its wants more amply satisfied with far less labor than would be necessary if production were carried on without capital. The possibility of interest is thus accounted for.

<sup>1</sup> S. N. Patten, *The Fundamental Ideal of Capital*, vol. iii of this Journal, p. 189.

## II

The actual benefit derived from the employment of capital in any particular instance could be ascertained in the following way. If we could measure the labor expended in any preparatory operation; for example, in making a particular machine, and also measure the labor saved by this machine — that is, the difference between the labor required to produce a given commodity with the machine and the labor which would have been required without it — we shall know what return is yielded by the labor expended in the preparatory operation in this instance.

It is often impossible to determine where the preparatory labor ends and where the labor immediately necessary for consumption commences. Often the very same operation is necessary for consumption in the present and preparation for the future. Further, nearly all operations require tools, the fruit of previous labor, which must accordingly be credited with a part of the gross result. As far as possible both these difficulties are avoided in the following illustration.

Suppose some villagers dwell near a practically inexhaustible oyster bed, from which they can supply themselves by direct labor, without tools. If one man builds a fishery of brushwood (for which he would require no tools worth taking into account,<sup>1</sup> he will probably be able to repair the fishery completely, and catch as many fish as are in his estimation equivalent to the oysters he gathered before, with less labor than would be necessary to obtain the latter. The labor thus saved, expressed as a percentage of that required to build the fishery, will give the rate of interest yielded by the labor

<sup>1</sup> Such fisheries are common on both shores of the River St. Lawrence, below Quebec.



thus invested. The fishery being everlasting, the return will be perpetual. It may be assumed for the present that the man will eat either fish or oysters indifferently, but that his desire for either is limited and remains unchanged. If all capital be similar to such a fishery, the fact that it earns interest should excite no surprise.

The causes affecting the rate of interest may be illustrated under the same hypothetical conditions, and the fact that it never sinks to zero accounted for.

If the beach available for such fisheries were limited, their number could not increase indefinitely without making fish harder to catch. If some sites were superior to others, the men who occupied the former would obtain an extra return which must be classed as rent. If all sites were equally advantageous, it is evident that after a certain point the number of fish caught by means of the fishery in a day's labor, or the number of days' labor required to catch a given quantity of fish, will vary inversely with the number of fisheries in use. Since all the fisheries are supposed interchangeable, the last one built would represent the marginal increment of capital, and its returns would, in the absence of other circumstances, fix the rate of interest in the village.

If every fishery were worked by its owner, no one might be aware that they were yielding interest. But if fisheries were loaned, interest would be paid. For, if fisheries are freely reproducible in a short time, their capital value would be fixed by that of the labor required to build them; but their annual value would be equal to that of the labor they saved. The number of days required to gather the desired supply of oysters would be the standard, for the men without fisheries would continue to labor in this way.

Suppose, now, new fishing grounds become available, where fisheries are no harder to build, but where the



desired supply of fish could be caught in fewer days than had been necessary on the original beach. The returns obtained from labor employed in building fisheries under the new conditions would fix the general rate, and the capital value of the old fisheries would fall till they yielded the same proportional return as the new. This would amount to a rise in the rate of interest.

But even if the beach available for fisheries were unlimited, their returns would tend to fall. Without a fishery we may suppose every man to have worked for one hundred days a year at gathering oysters. The first fishery may save its owner fifty days. Now, a second fishery may enable him to catch more fish in a day than he could with only one, but it cannot save him fifty days also, for that would mean his catching his supply of fish, and keeping both fisheries in repair, without any labor whatever. Yet a saving of fifty days would be necessary if the second fishery were to yield the same return on the labor expended in building it. In other words, after a certain point, additional fisheries will yield diminishing returns, whether or not space is limited.

Again, suppose an invention by which a fishery yielding a greater return can be built with the same amount of labor, or a fishery yielding the same return can be built with less labor; in this case also the capital value of the old fisheries would fall, and the general rate of interest rise. Eventually, however, it would tend, as before, to fall owing to the multiplication of fisheries. No single invention could be a permanent cause of high interest.

The rate of interest is thus shown to be reduced by an increase in the number of fisheries, and raised temporarily, but not necessarily in the long run, by the opening up of new fishing grounds, and by inventions.

The greater the number of fisheries, and the greater the return obtained from each, the more labor will be set free; and, if this labor be spent in building additional fisheries, the faster these will multiply. We could imagine such a number being made that the rate of interest would fall to zero. Probably this stage would never be reached, for the villagers would prefer one hundred days present leisure to, say, four days leisure annually for all future years, and this would keep the rate of interest at, let us suppose, 5 per cent. Just what the rate would become would depend on the intensity of the villagers' desire for present leisure, and the rate at which they discount the future.<sup>1</sup>

The intensity of the villagers' desire for fish would also affect the rate of interest. In this connection an answer will be given to the criticism which Böhm-Bawerk brings against productivity theories — that they fail to explain surplus value.<sup>2</sup>

Hitherto it has been assumed that fish and oysters would satisfy the same wants, and that the total consumption of both together was constant. We shall now discontinue this hypothesis, and assume instead that the total expenditure of labor is constant. In that case, the advantage of a fishery would be that it would enable a man, expending a given amount of labor, to catch a number of pounds of fish larger than the number of pounds of oysters obtainable by a man without a fishery, with the same expenditure of labor. The return yielded by a fishery, then, would depend on the value of this surplus in the quantity of fish, which would be determined by the rate at which the value of fish, measured in oysters, would fall owing to the increase in the supply;

<sup>1</sup> This part of the argument is the outcome of a suggestion of Professor Taussig's. It seems to be in agreement with Professor Fisher's theory regarding preference for present over future goods.

<sup>2</sup> Capital and Interest, Bk. II.

in other words, on the elasticity of the demand for fish, or on the intensity of the villagers' desire for that article of diet. If the physical productivity of the fisheries was given, the general rate of interest would vary directly with the intensity of the community's desire for their product.

This cause, which below will be referred to generally as the intensity of wants, is thus shown to affect the rate of interest if the supply of fish is given, but it would also affect the number of fish caught and, through that, the number of fisheries which would be built. For, the more fish our villagers desire to consume, the more labor will be devoted to catching them, and hence, if the amount of leisure enjoyed remains constant, the less labor can be devoted to the construction of additional fisheries. It follows that the more intense the villagers' desire for fish, the less will be the tendency for the rate of interest to fall owing to an increase in the supply of fisheries.

It may therefore be stated that the rate of interest will tend to vary with the intensity of the villagers' desire both for leisure and for fish.

The main contentions of the present essay have now been indicated. In what follows the foregoing reasoning will be applied generally.

### III

It was provisionally stated above that capital should be measured in terms of value multiplied by time. But the difficulty with this is that the value of capital depends on the rate of interest. That is to say, if the income from a certain set of capital goods is given, their value will vary inversely with the rate of interest.

There are cases, however, in which the above method of measuring capital would be correct. Of freely repro-

ducible goods the value conforms in the long run to their cost of production. The rate of interest generally affects the cost of production, because more capital is required in the making of some goods than of others; that is to say, the labor is differently distributed in point of time. In some cases, however, this does not happen. Certain goods may exchange in direct proportion to the labor required to produce them, and their relative values may not be affected by changes in the rate of interest. In these circumstances, capital could with perfect accuracy be measured in terms of its value multiplied by the time intervening between the moment when the outlay was incurred, and the moment when the capital has rendered all the services of which it is capable.<sup>1</sup>

But the quantity of capital must be expressed by a method which will apply not only to some cases but to all. Such a method will suggest itself if the foregoing reasoning is carried a step farther.

All capital is the result of labor. All labor may be said to have for its object the satisfaction of wants, but capital satisfies wants only after an interval of time. A given quantity of capital, then, means a given quantity of labor which will not finally result in satisfactions until after a given interval of time. The essentials of capital are labor and time, and an increase in either of these, the other being constant, or in both together, would constitute an increase in the quantity of capital. It is important to notice that some interval of time must elapse between the completion of the labor and the enjoyment of its result; otherwise the product of the labor would not be capital (as that word is defined above) but only wealth.

The circumstances affecting the demand for capital will first be considered. But in this connection the

<sup>1</sup> See John Rae, *New Principles of Political Economy*, Bk. II, especially chaps. I and II.

idea conveyed by the word demand requires careful analysis.

Demand is defined by a recent writer<sup>1</sup> as "effective desire, that is, desire coupled with the ability to pay the current price for the desired object." Dr. Marshall writes, "When we say that a person's demand for anything increases, we mean that he will buy more of it than he would before at the same price, and that he will buy as much of it as before at a higher price."<sup>2</sup> Now, if he would pay the higher price for a smaller quantity than before, would not his demand be increased in that case also? His demand might be said to consist in the price he offers, and not in the quantity he desires, for any person's desire for a thing that has value is infinite. In other words, the demand for any commodity could be conceived to have nothing to do with the quantity of that commodity, but might refer solely to the quantity of other commodities, or rather the value, which is offered in exchange for it. The same thing applies to capital. The demand for capital might be said to consist simply of the amount of interest it can earn.

"At any given period the rate of return on capital depends on the gain in productiveness from the least effective part of the capital. So far as this proposition is concerned there seems to be substantial agreement among modern economists."<sup>3</sup> If this be granted, any circumstance which will increase the advantage attributable to the last instalment of capital, without necessitating a proportional diminution in its amount, will increase the demand for capital.

The first circumstance which might be expected to act in this way is the development of new lands. If a

<sup>1</sup> H. R. Seager, *Principles of Economics*, § 42.

<sup>2</sup> *Principles of Economics*, Bk. III, chap. III, § 4.

<sup>3</sup> Taussig, *Principles of Economics*, chap. XXXVIII, § 5.

new country containing abundance of fertile land, like the Canadian Northwest, is opened up for settlement, a given crop can be raised with less labor in it than would be required in a densely populated country like England. But before these new lands can be cultivated much labor must be spent in the construction of buildings, railways, etc., a great part of which will earn nothing for years, and which will not render all the services of which it is capable perhaps for centuries. Nevertheless, after sufficient time has elapsed, the satisfactions which this labor will yield, or the return to this investment, are much greater than could be obtained from the same outlay in England.

If an interval of time must elapse between the expenditure of labor and the enjoyment of its result, the product of that labor is capital. If the whole productive process obtains a greater reward, capital must reap at least part of the benefit. Wages will also rise, but inasmuch as so large a share of the whole product must be imputed to capital, laborers could not hope to engross the whole advantage of the increased return. The rate of interest would therefore tend to rise. This explains why interest is always high in new countries.

Inventions are the second of the circumstances which affect the demand for capital. The effect of every successful invention must be to enable the same labor to produce greater returns, or less labor to produce the same returns. In any case the labor will become more effective, and the returns greater in proportion to the outlay.

The chief benefit may accrue either to the laborers or to the owners of the capital employed in that branch of production. If the effect of an invention is to increase the time which must elapse between the expenditure of the labor and the enjoyment of its final result, it might

be expected that the owners of capital would reap the whole benefit of the increased return, for they would be placed in a more advantageous position in competing with those who endeavor to render the same service directly, with the aid of little or no capital. Electric tram-cars, for instance, compete more effectively with cabs than horse cars could possibly have done.

If the effect of the invention is to reduce the interval of time during which labor must wait for its final result, interest might be expected to show less tendency to rise than wages. For, in the absence of a patent, and if the process were not kept secret, new opportunities would be opened to those who could afford to wait but a short time — to employ but little capital — and the latter would be placed in a better position to compete with those who rendered the same service by means of a more roundabout process. Inventions, such as knitting machines, which enable domestic manufactures to compete with goods made in factories, would illustrate this phenomenon. The tendency in this case also might be to raise interest, but the effect on wages would be greater.

Under actual conditions, the question of prices must also be considered. In the absence of a patent, these might be reduced so much that the consumer would be the only one to benefit. It seems, therefore, futile to attempt to forecast the effect of any particular invention on interest and profits in general.

These observations refer to the proximate effect of inventions on interest. Their ultimate effect requires separate consideration.

For the present we shall make the assumption that the aggregate consumption of society remains constant. For brevity the single word "consumption" is used as equivalent to what Professor Fisher calls "enjoyable



objective services,"<sup>1</sup> and includes not only material goods but also labor of every kind which satisfies wants directly and immediately. It is synonymous with the whole real income of society, and is the final object of all its labor.

If, then, the aggregate consumption of society were constant, it is evident that in the long run the effect of every successful invention would be to lessen the labor required to provide for this consumption. As has been pointed out by Professor Taussig, the effect of this might be that people would have more leisure; but we may assume that the leisure they enjoy also remains constant, and that everyone continues to work as hard as before. Under these suppositions, what could they work at? Not the satisfaction of immediate wants, for that is contrary to the hypothesis of constant consumption. They must, therefore, spend the labor saved by the invention in satisfying future wants, that is, in producing capital. But an indefinite increase in the supply of capital must lessen the return to the last instalment of capital, and cause a decline in the rate of interest. The conclusion is that if consumption were constant and people allowed themselves no more leisure, the ultimate effect of any single invention would be to reduce the rate of interest. Only a succession of inventions would keep the rate of interest high indefinitely.

Exactly the same reasoning applies to the opening up of new countries. Their effect on the rate of interest, both immediately and ultimately, will be the same as that of inventions.

These two are in essence different phases of the same general phenomenon. Invention consists in the discovery of new properties, or new ways of utilizing the properties of existing materials. The opening up of new

<sup>1</sup> *The Nature of Capital and Income*, chap. X, § 1.



lands consists in making an addition to the stock of materials presently available. The above discussion, therefore, has shown the effect of an increase in the supply of natural objects, which, being a factor in the production of wealth, constitute a third essential element of capital. And, it need hardly be said, inventions and the opening up of new lands cannot be looked upon as an exhaustive list of influences of this sort. Anything which increases the efficiency of labor suddenly may have a similar effect.

None of these phenomena, however, can be regarded as offering a final solution of the problem of interest. While their immediate effect may be important, it is neutralized after a certain time has elapsed. How great will be that immediate effect, and how much time will elapse before it is neutralized, will depend on other circumstances, to the investigation of which we now proceed. These other circumstances are the permanent and ultimate forces acting on the rate of interest and accounting for its continued existence. They act independently of new discoveries, which may therefore from now on be disregarded.

The third circumstance which may affect the demand for capital is variations in the intensity of wants. It is a commonplace that people's desires for some things are more intense than their desires for others; and that any person's desire for a particular thing is more intense at one time than at another. Is it not possible that there might be an increase in the intensity of every person's desire for things in general? Such would be the consequence, for instance, of a spread of the spirit of recklessness and extravagance. Wants in this connection are intended to refer to the present;<sup>1</sup> and it may be laid

<sup>1</sup> The intensity of wants thus corresponds to Professor Fisher's "time-preference" (*The Rate of Interest*, chap. 6). Neither the one nor the other could influence the rate of interest except by affecting present consumption.

down as a general proposition that, the more intense are people's wants, the more they will consume. Variations in the intensity of wants thus become synonymous with variations in consumption; for the intensity of wants can be measured, and can be conceived to affect the rate of interest, only by their effect on actual consumption.

Let us consider the effect of a general and fairly sudden increase in the intensity of wants. It means that more direct service and immediately consumable commodities are demanded. But the stock of these on hand at any given time is not indefinitely extensible.<sup>1</sup> If it were perfectly rigid, it would seem certain that the prices of the existing supply would rise. This supply might, however, be increased without a rise in prices; but that can be done, in general, only by making inroads on the stock which was originally destined for future consumption. Supposing wants to continue to increase, or even to remain constant at the higher level, a scarcity must shortly be felt, relatively to the demand, and prices would rise. Exactly where the rise would first be felt would depend, it seems to me, on the relative bargaining capacity of producers, traders, and consumers. Very likely "materials" and goods nearly but not quite ready for the consumer would be the first to rise in price, and the prices of "foods" and goods immediately consumable would follow the former. It seems, however, impossible to escape the conclusion that an increase in the intensity of wants would cause a rise in the prices of immediately consumable goods and services.

A general rise in all prices is not a necessary consequence. The rise in the prices of the above kinds of goods and services would only be relative to those of such goods as could not be consumed till after a considerable time had elapsed. If the general price level is

<sup>1</sup> See Taussig, *Wages and Capital*, pp. 87, 88-90.

fixed within narrow limits by the quantity of money in circulation, the prices of the latter goods might fall to counterbalance the rise in the prices of the former. If so, that would amount to a rise in the rate of interest, for the premium in value of present over future goods would be increased.

There is another ground on which an increase in the intensity of wants might be expected to cause a rise in the rate of interest. If a larger quantity of immediately consumable goods is demanded, more will presumably be sold. Then, provided only that their prices do not fall, the profits obtained by the owners of existing capital must rise also. It is true that money wages would increase, but chiefly those of laborers who satisfied wants directly. Laborers who coöperate in production with a great deal of capital could not hope to reap the whole benefit of the larger gross receipts, for the specific productivity of the last instalment of capital — the output of each machine employed in manufacture — would be augmented.

If the rate of interest rises owing to an increase in the intensity of wants, a decrease in their intensity would tend to cause the rate to fall. No further attempt will be made to prove this proposition. It appears to be the exact converse of the first, and all the phenomena might be expected to act in exactly the opposite direction.<sup>1</sup> We may therefore state as our first general conclusion that the rate of interest tends to vary with the intensity of wants or, what amounts to the same thing, with the total quantity of commodities consumed and of services enjoyed.

It may be objected to the above reasoning that it proceeds upon the assumption that the total quantity of

<sup>1</sup> See Taussig, *Principles of Economics*, chap. 41, on "Overproduction and Overinvestment."

capital will not increase. Now, it may be asked, if a greater quantity of goods than before can be sold at the same or higher prices, and if the employment of capital becomes more profitable in consequence, will not the supply of capital be increased, so that the advantage of the marginal instalment will be diminished, and the rate of interest fall? It might even be contended that the supply of consumable goods would be increased so much that their prices would fall to their former level, which would be a further force tending to depress the rate of interest. The reply to this is, that an increase in the intensity of wants must involve an increase in the quantity of goods and services consumed, and by itself could not possibly lead to an increase in the supply of capital, but must on the contrary tend to diminish it. Only one circumstance could counterbalance this tendency; and in this circumstance will be found the remaining important factor influencing the rate of interest.

As capital is conceived in the present essay, it is partly in the hands of consumers, partly in those of producers. As regards consumers, it is obvious that, while their incomes remain the same, the more they spend in satisfying immediate wants, the less they can save to provide for the future. Therefore, so far as consumers are concerned, the supply of capital will tend to vary inversely with their immediate consumption.

The same conclusion can be reached as regards producers. If the supply of capital is given, the only way in which present consumption can be increased is by increasing the amount of labor devoted to satisfying wants immediately. But the total amount of labor of which any community is capable—the gross annual product—is not unlimited. If we assume it to be constant, the more labor is devoted to satisfying wants immediately, the less can be devoted to the production

of capital, with the object of satisfying wants in the future, and the smaller will be the future supply of capital.

As regards both consumers and producers therefore (if we assume the total quantity of labor expended to remain constant) in the long run the supply of capital will vary inversely with consumption.

Just as an increase in the supply of capital will tend to cause a fall in the rate of interest, so an indefinite shrinkage would cause it to rise, whence it follows that the rate of interest tends to vary inversely with the supply of capital. Accordingly, the proposition that the rate of interest tends to vary directly with the aggregate consumption of society is not invalidated, but is given a further ground to rest on.<sup>1</sup>

It remains to investigate the important influence tending to prevent a rise in the rate of interest, and of prices, owing to increased consumption. The proposition that the rate of interest tends to vary with the intensity of wants is only valid upon the assumption that the total quantity of labor expended by the whole of the community is constant. This cannot normally be the case, for an active demand stimulates trade activity, and induces those who supply the market to expend more labor in the task. It is now necessary to define a little more precisely what is meant by an increase in the quantity of labor expended, and what will be the effect of such an increase on the rate of interest.<sup>2</sup>

The total quantity of labor of which any given community is capable depends upon the number of persons

<sup>1</sup> Reverting to the possible effects of new discoveries, it is evident that most of them will increase the intensity of wants, or rather, what amounts to the same thing, will create new desires. The invention of motor cars, and the importation into Europe of diamonds from South Africa and of tobacco from America, have caused a general increase in the consumption of such articles, and in the resources devoted to their production. In so far, therefore, new discoveries have a permanent and ultimate as well as an immediate tendency to raise the rate of interest. Probably this has been their general effect.

<sup>2</sup> In the following reasoning I am aided by a suggestion from Professor Taussig.

composing it who are able to work, and on the physical, mental, and moral qualities of each. Any investigation into the causes which may determine these circumstances clearly lies beyond the scope of the present inquiry. It is necessary to assume that the general character of the population remains the same.

The total quantity of labor which any population will actually expend during a given period, a year for example, depends in the first place on the total amount of time devoted to labor. That is, it depends on the number of hours in a day and of days in the year during which each of its members works. For each man, therefore, it varies inversely with the amount of leisure he allows himself. The term "labor" is of course intended to include not only manual labor but all forms of clerical and intellectual labor as well. We may therefore conclude that, other things being equal, the total quantity of labor expended varies inversely with the total amount of leisure enjoyed.

If the time actually spent in labor is given, the quantity of labor will depend on the intensity, dexterity, and intelligence with which that labor is applied; in other words, on the efficiency of labor. The measurement must in this connection be objective, as only thus can it have any application to the present reasoning. It may therefore be stated that the total quantity of labor expended by any population in a given time varies directly with the efficiency of their labor, and inversely with the amount of leisure they allow themselves.

It is now necessary to consider briefly the effects of an increase in the total quantity of labor expended. Supposing total consumption to remain constant, the quantity of labor which must be expended in the immediate and direct satisfaction of present wants also remains constant. Therefore, if the total quantity of labor

expended by the community is increased, more labor must be devoted to satisfying future wants, in other words, to the production of capital. Accordingly, if consumption remains the same, the supply of capital will vary with the quantity of labor expended. But it will not, I think, be disputed that under the same assumption the rate of interest would vary inversely with the supply of capital. Recalling what was established above as to the effect of variations in consumption, it becomes possible to formulate the conclusions of this essay in the single proposition — the rate of interest tends to vary directly with the aggregate consumption of society, and with the amount of leisure which people allow themselves,<sup>1</sup> and inversely with the general efficiency of labor.<sup>2</sup>

To summarize my conclusions: in the view here presented all capital consists essentially of labor-saving devices. Capital yields interest because a given product can be turned out with less labor with the aid of capital than would be necessary without this aid. That is equivalent to saying that the same labor can turn out a larger product with capital than without, which is the result arrived at by those who support the productivity theory.

Professor Carver gives an able presentation of this view.<sup>3</sup> But he goes on to point out that if the supply of capital increased indefinitely, interest would sink to zero. What, then, prevents capital from increasing up to this point? He answers that question as follows:

<sup>1</sup> As this proposition was originally conceived, the element of leisure was omitted. Its inclusion is due to Professor Taussig's suggestion.

<sup>2</sup> As to new discoveries, the above observations must now be further qualified. In addition to saving labor they may increase its efficiency. This would be the usual effect of anything which creates new or more intense desires, for it offers new motives for exertion; and increased consumption may also increase the general capacity for labor. For this reason, some new discoveries may have a stronger tendency to reduce the rate of interest than to raise it.

<sup>3</sup> *The Distribution of Wealth*, chap. 6.



"Such a check is found in the conjunction of two facts: first, the owner of capital must wait for its earnings to come in; second, as a rule, men do not like to wait."<sup>1</sup> In his application of this he seems to regard waiting as, in some sort, a conscious process.

While it is quite true that, in general, people are anxious to reap the reward of their labor as soon as possible, it does not seem necessary to regard labor as a separate factor of production. The answer to this question suggested by the present essay would be that capital is always able to earn interest simply because people work so little and consume so much.

A. F. McGOUN.

WESTMOUNT, P. Q., CANADA.

<sup>1</sup> *The Distribution of Wealth*, p. 228.



## MARKETING AGENCIES BETWEEN MANUFACTURER AND JOBBER

### SUMMARY

I. Introductory. Reasons why manufacturers employ intermediaries to reach jobbers, 571. — Distinguishing features of commission houses, manufacturers' agents, and brokers, 574. — II. Commission houses in the textile trades, 576. — III. Manufacturers' agents and purchasing agents in the hardware trade, 580. — IV. Manufacturers' agents in the grocery trade, 586. — V. Brokers in the grocery trade, 589: flour brokers, 591; canned goods brokers, 594; sugar brokers, 596; coffee brokers, 598. — Conclusion, 599.

### I. INTRODUCTORY

IN his *Some Problems in Market Distribution*, Mr. A. W. Shaw describes as the "orthodox type in distribution," the marketing of goods by manufacturers through selling agents to jobbers, and thence to retailers, and cites the textile trades as an example.<sup>1</sup> He further explains that the tendency is for the manufacturer to sell direct to jobbers, thus doing away with the services of the commission house. It is true that there is this tendency, and yet the use of an intermediary middleman between producer and wholesaler is much more common than is usually thought and occurs in a number of important trades. Furthermore, this middleman appears to be holding his own to a surprising extent, and there is every indication that he will continue to be an important factor in the marketing organization for an indefinite future period.

This class of middlemen comprises commission houses (sometimes known as selling houses), manufacturers'

<sup>1</sup> P. 72. Cf. also Shaw's *An Approach to Business Problems*, pp. 168 ff.

agents, brokers, and purchasing agents. Commission houses are common in the cotton, woolen, and silk goods trades, and are found to a certain extent in the hosiery and knit goods and "notions" trades. Manufacturers' agents are common in the grocery and hardware trades, and brokers are very important in the grocery trade. An interesting form of the purchasing agent is found in the hardware trade. Similar middlemen appear to a certain extent in other trades, but the reason for their existence and their methods of doing business may be understood by studying them in connection with the three trades enumerated above, viz., textiles, hardware, and groceries.

The reason why manufacturers have middlemen market their goods at all is that they, the middlemen, can perform the marketing functions more cheaply than can the manufacturers themselves. Perhaps the principal reason why the middleman can do this more cheaply is that he combines the outputs of a number of manufacturers, thereby using one selling organization to sell a larger number of different goods, or a larger volume of similar goods, than would be the case if each manufacturer had his own sales organization. The selling expense per unit of goods is lower when one salesman can sell a line of goods rather than a single product. It follows that the large manufacturer, especially if he makes a line of different articles, can often afford his own sales organization — sometimes taking over even the jobber's functions, and selling direct to retailers. In a few cases, manufacturers even sell to consumers through their own retail stores.

It also follows that the small manufacturer, especially if he makes a single product, would often be put to prohibitive expense if he had to maintain a sales department to reach the thousands of retailers all over the

country — and for the same reason he often finds it advantageous to use a middleman even to reach the few hundreds of jobbers. Other considerations, such as need of financial assistance and remoteness from trade centers, also enter as factors which often make it desirable for manufacturers to employ such an intermediary in order to reach jobbers.

The services performed by commission houses, manufacturers' agents, and brokers can best be understood in a general way by reference to the marketing functions, which are as follows: assembling, or the seeking out of commodities from various sources, making business connections, etc.; storing, or the holding of goods at convenient points; financing, or the giving of credit, making loans and advances, etc.; assumption of risks from price fluctuation, deterioration, style changes, etc.; rearrangement, or the sorting, grading, and packing function; selling (which includes advertising); and transportation (the most important feature of which is the delivery service). It appears that intermediaries between manufacturers and jobbers perform but few of these functions. They rarely store commodities for their principals; they assume but little risk, because they do not take title to the goods; they have practically no sorting and grading because they sell in large quantities and rarely handle the goods at all; and they do none of the transporting. This leaves the actual selling of the goods, which is their most important function; financing, which is important in the textile trades but not in the hardware and grocery trades; and assembling which they perform by representing manufacturers who are often located in different parts of the country.

The purchasing agent is fairly distinct from the other three forms of middleman described here because he represents buyers rather than sellers, but it is rather

difficult to draw clearly the lines of demarcation between commission houses, manufacturers' agents, and brokers, especially as they merge into each other in certain cases.

The distinguishing features of commission houses, which are found primarily in the textile trades, appear to be as follows: They generally market the whole output of each mill that they represent or the whole output of at least one of the mill's products, such as its cotton yarn, or its woven fabrics; their financing function is much more important than in the case of brokers and manufacturers' agents; they handle goods of the same kind for different mills; they usually have more power in determining the price at which goods shall be sold than do the other two kinds of middlemen; they handle goods which are not usually branded and advertised; they receive their compensation in the form of a percentage commission on sales; they often perform the additional service (which may be considered a part of the selling function) of furnishing designs for the mills, and telling them what fabrics and designs to run through the looms.

The distinguishing features of the manufacturers' agent, who is found in the hardware and grocery trades, appear to be as follows: They more commonly sell for their clients in a restricted, tho fairly extensive, territory, so that a manufacturer may have two or more agents in different sections of the country — tho there are exceptions to this, especially in the hardware trade; their financing function is unimportant as compared with commission houses, inasmuch as they rarely make advances to or otherwise finance manufacturers; they handle a variety of goods of the same general class, such as various kinds of hardware, but they sell each particular article for only one manufacturer; sometimes, especially in the grocery trade, they handle branded and

advertised goods; similar to commission merchants, they usually receive their compensation in the form of a percentage commission, but sometimes they receive salaries or lump-sum-annual payments, and not infrequently, flat rates per package of goods sold; they usually have to follow the prices set by the mills rather than enjoy the privilege of setting prices themselves.

The distinguishing features of brokers, at least as they appear in the grocery trade, are as follows: Their field of activity is more limited than in the case of commission houses and manufacturers' agents, since they frequently sell to jobbers only in the city where they are located; the "pure" broker does not represent any particular manufacturer, but places his orders from purchasers with any manufacturer whom he may select at the time (there is a tendency for so-called brokers to represent definite manufacturers in restricted markets, as will be pointed out below); they usually have no financing function; they sell the same kind of goods for different manufacturers; they handle principally unadvertised goods; they usually receive flat rates per package or per carload, rather than a percentage compensation; they have very little leeway in determining prices, usually having to get them "confirmed" by manufacturers.

The foregoing features of these different kinds of middlemen will be brought out more clearly in the detailed descriptions that follow. In many cases, trade terminology and changing methods of doing business render it difficult to distinguish between commission houses and manufacturers' agents on the one hand, and between manufacturers' agents and brokers on the other. The distinguishing features as described above apply to the pure types of these three kinds of middleman.

## II. COMMISSION HOUSES IN THE TEXTILE TRADES

The commission houses in the cotton and woolen goods trades will not be discussed in detail in this place, because they have been admirably described by others.<sup>1</sup> Brief descriptions drawn largely from these two sources will be given, however, for purposes of comparison.

The commission house or selling house in the cotton and woolen goods trades developed at an early date, largely because of financial relations with the mills. Many of the first commission houses had previously been engaged in the import trade and had amassed capital and established credit relations, which placed them in an advantageous position to finance early American mills. The principal functions of these selling houses today are financing the mills and selling their goods. In financing they employ various methods, such as direct loans to mills, endorsing the mill's paper, guaranteeing accounts, buying the mill's stocks and bonds, and "cashing sales." To "cash sales" means that the commission house turns over to the mill the value of goods sold, even tho the buyers of the goods may not pay until a month or more later. In the silk trade, this is often done at the end of each month, the commission house deducting interest until the date when accounts are payable. Textiles are sold on fairly long terms, so that by having their sales "cashed," the mills are receiving their money long before payment is actually made by the purchasers of the goods.

The commission house in the textile trade is usually the sole agent for each mill whose goods it handles, tho sometimes a mill employs two selling houses, one for its

<sup>1</sup> See Copeland, *Cotton Manufacturing Industry of the United States*, chap. 11, and Cherington, *Wool Industry of the United States*, chap. 7.

yarn or tops, and one for its fabrics. A selling house usually represents from five to fifteen mills — sometimes a larger number. The same house often sells both wool and cotton fabrics. Most of these commission houses have their main offices in New York, but many of them have branches in other large cities. They have regular sales organizations and send out traveling salesmen. They sell principally to jobbers and to the "cutting up" trade (clothing manufacturers), but also to large retailers (department stores and mail order houses) to a certain extent.

In addition to the actual sale of the goods, it is common for these houses to furnish designs for the mills, and to instruct the mills what to run on their looms. Since they are closely in touch with style changes and trade conditions, they are of considerable service to the mills in this respect. The commission varies for different goods, and for different mills. In the cotton goods trade it is about  $1\frac{1}{2}$  to 2 per cent for northern mills, and from  $3\frac{1}{2}$  to 4 per cent for southern mills. It is higher for the latter because of the greater financial assistance required, and the greater risk involved. Many of the northern mills have become so strongly intrenched financially that they no longer need the financial assistance of the selling houses. In the woolen industry, the commissions run from 2 per cent on staples to as high as 5 per cent on "fancies."

There is a decided tendency for the larger mills to do away with commission houses, establish their own selling organizations, and thereby sell "direct," (which means direct to jobbers and the cutting-up trade). In some cases, commission houses have become so closely connected with mills in a financial way, that the selling house has merely been transformed into the sales department of the manufacturing company. The Amoskeag



Manufacturing Company, one of the largest manufacturers of cottons and worsteds in the country, furnishes an interesting example of this; until a few years ago it sold through a selling house in New York, but the two concerns became so closely connected that the selling house finally gave up its old name, and became a part of the Amoskeag Company (the sales department) without change of personnel. In the woolen and worsted goods trade, direct sale became much more important when the American Woolen Company was formed, thus combining in one sales organization the outputs of some forty mills that had previously sold through commission houses. To be sure, the American Woolen Company of Massachusetts (the manufacturing company) sells through the American Woolen Company of New York (the selling company) on a commission basis, but to all intents and purposes the latter is the sales department of the former, and it is correct to say that the American Woolen Company sells "direct."

In the silk goods trade, the commission house occupies much the same position as in the cotton and woolen goods trades, except that the financing function is perhaps a little more difficult to perform, the selling house is more apt to carry a stock of finished goods, and the commissions charged are higher. That the financing function is more difficult to perform is due partially to the fact that there are a great many small silk mills of doubtful financial strength. Raw silk is sold to mills on six months' time, thus enabling manufacturers to make up goods, and get money advances from their selling houses even before they have paid for their raw material. This situation makes it relatively easy for men with little capital to start silk mills, and militates against financial stability in the trade at large. Furthermore, silk fabrics are more in the nature of "fancies" than



cottons and woolens, and their market values are not so definite; hence they do not constitute such good security for the basis of loans.

The commission house is also used in the hosiery and knit goods trade. To quote from a recent Government bulletin on the knit underwear industry:<sup>1</sup>

A commission house will take all, or the greater part of the output of a plant and will receive a certain commission, usually from 7½ to 10 per cent. This commission covers discount, freight, cartage, storage, and insurance, the manufacturer having no further responsibility in regard to the finished goods. The commission house sells to jobbers or retailers and stands all discounts, etc., and generally guarantees the account.

A similar bulletin on the hosiery industry shows that out of seventy-three establishments studied, only three sold through commission houses.<sup>2</sup>

Not only is the commission house employed by manufacturers of textiles, but also by manufacturers of many other articles that reach consumers through dry goods stores. These articles fall principally in the class known as "notions," but comprise some that would be classed as toilet articles. They comprise such things as pins, hair pins, buttons, hose supporters, hooks and eyes, hair brushes, combs, shaving brushes, etc. Many of these articles are made by small manufacturers who cannot market them efficiently individually. The commission houses sell these goods principally to notions jobbers and dry goods jobbers. The tendency is for this class of manufacturers to go direct when they become large enough, and when they no longer need the financial assistance of the commission house.

There are only four or five commission houses of this kind, all located in New York, but they do a consider-

<sup>1</sup> Bureau of Foreign and Domestic Commerce, Miscellaneous Series, No. 32, p. 135.

<sup>2</sup> Ibid., No. 31, p. 165.

able business, and are an important factor in this trade. The writer has obtained information from only one, but its methods are probably fairly typical. It represents about forty different manufacturers, but the bulk of its business is done with half of these. This particular house also handles knit goods (hosiery, sweaters, and underwear), but this combination is unusual, and is found in only one other house. It handles about one hundred different items, and carries the same line for competing factories except when the factory gives exclusive sale to the commission house, in which case it handles the line for only the one manufacturer. It finances manufacturers either by making advances on unsold goods (up to 75 per cent of value in some cases), or by cashing sales. Goods in this trade are sold on ninety days' time (2 per cent ten days, net thirty, with sixty days dating), so that by having his sales cashed, the manufacturer gets his money within thirty days, whereas he would otherwise have to wait from seventy to ninety days. The commissions on notions run from  $7\frac{1}{2}$  to 10 per cent.

### III. MANUFACTURERS' AGENTS AND PURCHASING AGENTS IN THE HARDWARE TRADE

The reason for the existence of intermediaries between hardware manufacturers and jobbers is found in the fact that many hardware manufacturers confine their attention to single articles, or single lines of articles. For example, one manufactures nothing but scissors, another saws, another wrenches, and so on. Furthermore, many such manufacturers have relatively small outputs, and a good many of these are located at a distance from market centers, so that they find it difficult to keep in touch with trade conditions.

A large manufacturer, especially if he makes a wide variety of products, generally finds it economical to maintain a sales organization to reach jobbers, without employing an intermediary, and a few even sell a large part of their outputs direct to the retail trade. One of the largest hardware manufacturers in the United States reaches the larger retailers with his own salesmen, but leaves the smaller ones to jobbers, and in order to make his line more complete and reduce selling expense the salesmen of this company carry a few goods made by other manufacturers.

That such direct sale to retailers is out of the question for the small manufacturer making a single product is obvious. That he might sell direct to the few hundred jobbers is possible; but as a matter of fact, a large number have found it more economical to use a manufacturers' agent. The agent becomes the manufacturers' sales department; he combines the outputs of several manufacturers — from ten to thirty in number — and his salesmen are taking orders for a large variety of hardware goods, rather than a single product, thereby reducing the selling expense per unit of goods sold, and making it possible for goods to reach jobbers at a lower price than if each manufacturer had his own sales organization.

The manufacturers' agent does not handle the same kind of product for two different manufacturers; i. e., he sells saws for one, scissors for another, and so on, and agrees by contract with each manufacturer not to handle similar goods made by a competitor. The manufacturer, on the other hand, agrees to give the agent exclusive sale of his products, sometimes for the whole country, and sometimes for a certain section of the country. In a few cases, the manufacturer sells direct to jobbers in territory near his plant, and uses agents in more remote

parts of the country. Several of these manufacturers' agents are located in New York, but they are found in many other large cities. Tho they sell mainly to hardware jobbers and machinery supply houses, they not infrequently sell to the largest retailers, especially department stores.

These houses usually receive their compensation in the form of a commission on sales, varying from 5 to 10 per cent on different articles. One of the largest houses handles some of its accounts on a salary basis; i. e., it is paid a lump sum per year by the factory for disposing of its product, and prefers this method on the ground that the manufacturer is more likely to give his consent to a large order at a special price, than if he had to figure in the commission he would have to pay on such a sale. This house thinks that the best method is a salary on sales up to a certain volume, and a commission on all sales above that amount.

Manufacturers' agents in the hardware trade do practically no financing, tho in a few cases they have financial interest in factories that they represent. Tho they carry a few goods to supply nearby territory, they have but little of the storage function to perform, as goods are usually shipped direct from manufacturer to purchaser. Their main function is selling. They often publish catalogs of the goods they handle, and they send out salesmen just as the manufacturer would have to do if he had his own sales department. There appears to be no pronounced tendency in the hardware trade for the manufacturers' agent to become a less important factor.

As an indication of their present importance in this trade, information was procured from ninety-three hardware jobbers in the United States concerning the extent to which they buy from such intermediaries. Out of these ninety-three, only five concerns reported that they

do not buy through manufacturers' agents at all, leaving eighty-eight, or 94.7 per cent of the total, that do purchase through them. Of these eighty-eight, sixty-seven reported that they use them only a little, whereas the remaining twenty-one state that they buy 25 per cent or more. Some of them report that they buy as much as 40 or 50 per cent in this way. As might be expected, it appears that houses in the South and West purchase through these intermediaries more commonly than do those in the East. Inasmuch as it is possible that many of the wholesalers who report that they buy "very little" or only to a "limited extent" in this way, purchase more than their answers indicate, it is clear that a substantial proportion of all hardware — possibly from 15 to 20 per cent — passes through the hands of these intermediaries on its way from manufacturer to wholesaler.

Another interesting feature of the hardware trade is the purchasing agent, who represents the jobber. The assembling function, which is an important one for all jobbers, is simplified for them to a certain extent by the sending out of manufacturers' and agents' salesmen; but there are many products, such as wire, and other articles in which metals predominate, which they can buy to best advantage only if they follow market conditions in the principal trade centers (especially New York) with great care. The average jobber is not in a position to do this efficiently and economically. Furthermore, there are a great many small jobbers, each of whom can use but a relatively small quantity of certain products, and who would be able to buy at lower prices if they could pool their orders and thus get quantity prices.

These are the two principal factors that account for the existence of the purchasing agent in the hardware

trade, viz., need of exact and continuous information of trade conditions and price fluctuations, and the ability to buy at lower prices by placing combined orders. Whereas the manufacturers' agent previously described, acts as a specialized selling organization for manufacturers, the purchasing agent acts as a specialized buying organization for jobbers.

There are only four or five important purchasing agents of this nature in the country, but some of these do an extensive business. The largest one, located in New York, represents three hundred hardware jobbers scattered all over the United States and Canada. The western, southern, and Canadian jobbers probably need this service the most, yet eastern jobbers, even some located in New York City, are clients of this company. The company works entirely on a salary basis, i. e., a lump-sum-per-year payment. This basis is necessary, because many clients employ the purchasing company principally, or even solely, for the sake of procuring trade information, whereas others buy large quantities of goods through it.

This purchasing company keeps twelve specialists at work studying the market continuously. A loose-leaf catalog of price quotations is published and distributed to clients, and "change" sheets are sent out in large numbers every day. By finding out in advance the needs of its clients, it is able to order enormous quantities of products from manufacturers at one time, occasionally taking the whole season's output of a manufacturer. All concessions received from manufacturers are passed on to clients. The service also includes the picking up and consolidating of small lots of goods, which the distant jobber cannot buy advantageously or have shipped economically without such service. This company deals not only in standard hardware, but in electrical, auto-

mobile, plumbing, machinery, and other supply lines. The annual purchases made through the company amount to many millions of dollars.

According to information received from ninety-six hardware jobbers in the United States, eighty report that they use purchasing agents, leaving sixteen that do not use them at all. Of the eighty concerns, fifteen report that they use them only for the market news service described above, rather than for actual buying. Eastern concerns appear to use these intermediaries as much as western and southern concerns, but more largely for information purposes only. The fact that 83.3 per cent of all jobbers reporting use purchasing agents at all, however, indicates that these middlemen must perform a substantial and valuable service.

Purchasing agents of a similar nature are found in other trades, notably in the dry goods trade, where they are known as "resident buyers," a term more frequently applied to buying agents of department stores in New York City. Department stores do not usually buy through jobbers, and therefore have to go to the expense of performing their own assembling function. This is done in four principal ways in New York City, the principal market in which they buy: first, by sending buyers to New York (without any permanent representative in that market); second, by maintaining their own permanent buying offices in New York (an expensive method that can be indulged in by only a few of the largest department stores); third, through coöperative buying syndicates, whereby a number of department stores club together and divide up the expense of maintaining a permanent buying organization in New York; and fourth, by employing an independent resident buyer, who represents a number of stores, provides office space for their buyers when in town, provides sample



rooms where goods may be displayed, executes fill-in orders, consolidates, packs, and ships orders to clients, keeps clients posted on market conditions, and who picks up job lots which department stores use for their special mark-down sales. Inasmuch as dry goods jobbers have to buy in New York in much the same way that department stores do, they also frequently use resident buyers.

#### IV. MANUFACTURERS' AGENTS IN THE GROCERY TRADE

Tho the lines of demarcation between manufacturers' agents and brokers in the grocery trade are rather indistinct in some cases, the former are employed mainly to market "branded specialties," and the latter to market unbranded or staple commodities. The manufacturers' agent usually sells over a much wider territory than the broker, and on the whole he is very similar to the selling agents in the hardware trade, and exists for much the same reasons, i. e., the combining of the outputs of different manufacturers with consequent reduction of selling costs.

The fact that branded staples are commonly sold this way has an important bearing on the matter; many of the well known grocery products were started in a small way, and when national distribution was first sought, the manufacturers themselves could not judge as to the probable success of their advertising campaigns. They also frequently started with but a single product, and they had no business connections. Consequently, they called on manufacturers' agents, who already had sales organizations in operation, and who were in the best situation for reaching the trade. On the other hand, as some of these grocery specialties have



become widely used, and hence move in huge quantities, manufacturers have in many cases found that they could afford sales organizations of their own, and have therefore done away with agents. One of the largest manufacturers' agents in the country reports that, all through his history, he has been gradually taking on accounts for newly advertised specialties, only to have his commissions gradually reduced and sometimes to lose the accounts altogether as distribution has become successful and voluminous. This particular agent has also taken on other commodities—especially canned goods—on a brokerage basis, in order to increase and stabilize his business. Another has obtained control of manufacturing plants, so as not to lose important accounts. In other words, manufacturers' agents are of special importance during the early years of building up a distribution for advertised grocery products, and are likely to give way to manufacturers' own sales departments when the distribution has become successful. This constitutes a distinct tendency in the grocery trade.

The statements brought out above are admirably illustrated by the history of the methods employed by the breakfast cereal companies. The Kellogg Toasted Corn Flake Company, for example, at first used manufacturers' agents in different parts of the country in order to reach jobbers. Gradually, as output increased, this company began to develop its own sales organization, and did away with its last agent only a few years ago. In order to do this, it has had to develop a territorial sales organization, with each district in charge of a territorial sales agent (taking the place of the former manufacturers' agent). A stock of goods is kept on hand in each district to care for rush orders. The fact that the Kellogg Company manufactures more than one product, and that it probably figures that it gets better

attention to its products through its own salesmen, have undoubtedly been factors in adopting this policy.

Most of the other well known breakfast foods, such as "Shredded Wheat" and "Quaker Oats," are also sold direct to the jobbing trade, but it is said that the Cream of Wheat Company still uses the manufacturers' agent, at least in some parts of the country. When this company began putting up carefully selected and sterilized "farina" or "purified middlings," about the year 1900, and advertising it under the name of "Cream of Wheat," it naturally could not afford a sales organization of its own, especially as the success of the venture must have been highly problematical; and it was only natural that it should have employed agents. A company of this sort naturally balances the cost of a sales organization of its own against the cost of selling through agents, and it changes to direct sale only when it is sure that it can do so more cheaply and more effectively than by employing agents. If it can induce agents to accept smaller commissions, as the volume of business increases, this may at least postpone the development of direct selling.

Manufacturers' agents in the grocery trade handle a large variety of products for manufacturers, including soap, cornstarch, stove polish, shoe polish, condensed milk, malted milk, soft drinks, confectionery, cooking oil, chloride of lime, etc. They have practically no financing function to perform; they carry only small stocks from which emergency orders may be filled. Tho they generally send their salesmen to jobbers only, at least one company was found (in Boston) that sends its salesmen to retailers to take orders, which are booked through jobbers. In other words, this agent performs the service of sending out "specialty men," which is often done by manufacturers of grocery specialties themselves.

Each manufacturers' agent has a specific territory to cover: Boston houses usually cover New England, and New York houses often have territory east of Buffalo and Pittsburgh, and so on. As in the hardware trade, an agent handles each product for only one manufacturer, and has exclusive sale within his territory. The commissions vary all the way from 2 or 3 per cent to 10 per cent, varying for different products, and with the extent to which a substantial distribution has been built up. The reduction of commissions allowed to manufacturers' agents is a good illustration of the power of advertising to reduce selling costs.

#### V. BROKERS IN THE GROCERY TRADE

Brokers are of considerable importance in the grocery trade; wholesale grocers, even the largest, buy a very large proportion of their supplies through this class of dealers. Commodities commonly handled by them are sugar, rice, canned goods, flour, dried fruit, coffee, tea, salt, salt fish, syrup, molasses, and other products of minor importance. Brokers handling these products are found in all the large cities of the country. In many cases a single broker handles a number of different products, but in the largest cities there is a high degree of specialization — such as sugar brokers, coffee brokers, canned-goods brokers, etc.

The *true* broker does not make exclusive arrangements with individual manufacturers; in other words, he is a free lance, placing orders that he receives from jobbers with any manufacturer that can offer the best price. As a matter of fact, most of the so-called brokers are tied to certain manufacturers for whom they are sole agents in the cities or territories where they — the brokers — are located. In this respect, such brokers are

very similar to manufacturers' agents, and hence it is often difficult to distinguish between the two. The pure type of broker exists to a certain extent, however, as in the sugar trade in New York, and in the form of "merchandise brokers," who are found in all large markets. This latter class does a very miscellaneous sort of business. They sell for distant shippers who send only occasional carloads of products to market; they bring buyer and seller together in the same market, as for example when a wholesale grocer has a surplus amount of sugar or flour which he wishes to dispose of.

In general, brokers exist in the grocery trade for very much the same reasons that the other intermediaries are found between producer and jobber. They represent a number of sellers, and thereby reduce selling costs. The production of many of the commodities that they handle is seasonal, which is another reason why manufacturers cannot afford to keep their own representatives in all large markets of the country. Furthermore, the manufacturers in many of the trades where brokers are important, are small, isolated, and scattered throughout the country. Most brokers sell within a limited territory; they have practically no financing functions; they represent the sellers in most cases, rather than the buyers; they are commonly paid a flat rate per package or per car for their services, and the brokerage usually amounts to from less than 1 to 2 per cent of the selling price; they handle principally unadvertised commodities; and they have to get their prices confirmed by their principals.

A broker in the grocery trade is usually a single individual who does his own work, except for some clerical assistance in his one-room or two-room office, and does not have a force of traveling salesmen as do many of the manufacturers' agents described above. His expenses

are low, consisting of office rent, telegraph and telephone, clerical help, sometimes a salesman or two and oftentimes expressage on samples — for sale is largely by sample. He has to be an expert on the commodities that he handles. He goes in person to the wholesale dealers to obtain orders, and is of considerable value to these wholesale buyers by keeping them posted on market conditions, and by saving them the trouble and expense of sending out buyers to scour the country for goods which they want.

There appear to be two leading problems connected with the activities of brokers, viz., the splitting of commissions, and the buying of goods on their own account for speculative purposes. Competition is keen, and in order to land large orders they frequently cut their brokerage fees below the customary rates. In spite of some attempts to do so, they have not been able to govern this matter through associative action. The buying of goods for speculative purposes is not looked on with favor for the simple reason that a broker is not likely to give his best services if he has goods of his own to dispose of in competition with those of his principal. On account of the prevalence of these two practices, some brokers are found in each market who have unsavory reputations in the trade. Absolute honesty and disinterested service are as essential in the broker as in any other form of middleman.

Turning to the milling and flour trade, we find three principal methods used by millers in marketing their flour: first, direct to retail stores through branch offices, a method employed by the large manufacturers of nationally advertised flour which is destined for "family trade"; second, direct to jobbers (wholesale grocers, flour and feed jobbers, and specialized flour jobbers)

and large bakers; and third through flour brokers to jobbers and bakers. A flour mill sometimes employs all three methods at the same time, selling branded flour to retail grocers in thickly populated sections of the country, branded flour and good quality unbranded flour to jobbers, and "clear" or lower quality flour through brokers. Advertised brands are not sold through brokers.

Large mills seldom sell their best quality flour through brokers; but small mills, especially those in distant localities, find them practically indispensable for efficient marketing. The output of a small mill varies from year to year; during one year it may be able to market its product in nearby cities, and during the next year it may have to seek wider markets. The quality of flour made by small mills varies from season to season, which results in having to seek different classes of buyers and even different markets from year to year. Different types of flour are made in different parts of the country. Each mill has but one kind of flour to sell, whereas each flour jobber or wholesale grocer needs perhaps five or six different types and grades.

The foregoing facts indicate why it does not pay the small or average sized miller to maintain his own permanent sales force in order to reach the principal markets. The broker not only reduces selling expense by combining the outputs of several mills (usually from five to twenty), but he represents mills which are located in different parts of the country, so that he not only always has flour to sell, but he handles the different types. Formerly, many of these brokers were commission men, and small mills shipped their flour to them on consignment without knowing what price they were to receive. Then they began sending samples from which the commission men would take orders, getting prices

confirmed by shipper before sales were consummated. Thus the commission man became a broker.

Flour brokers are expert judges of flour quality. They work over and carefully inspect the samples sent by their principals, and form opinions of the baking quality, etc. Through their knowledge of qualities their services are of great value to the flour buyers of wholesale grocery houses, and they keep these buyers posted on market conditions from day to day. The flour buyer of one of the largest wholesale grocers in Chicago says that he buys about 25 per cent of his flour through brokers; that he can't hope to keep in touch with all the mills from whom he buys flour; and that even if he is trying to buy direct it frequently happens that he can't get the flour that he wants from some particular mill at the time he wants it, and that therefore he has to resort to the brokers to find what he wants. The broker is therefore a great help to the wholesale grocer in his assembling function.

The flour brokers sometimes buy flour for speculative purposes; those with the best reputation do not. Even these, however, occasionally take title to a certain amount of flour, first for the purpose of keeping a small stock on hand to fill rush orders, and second, occasionally to help out a small mill that can't afford to wait for its money until its flour is sold. Flour is sold by brokers in car-lots, and the mill both ships and bills direct to the purchaser that the broker has found. Usually the flour broker performs no financing function, but occasionally honors drafts of small mills, rather than keep them waiting for their money. The customary brokerage fee is ten cents a barrel, but this is frequently cut on large orders. Each miller usually employs but one broker in a city, tho some mills sell through any broker who finds a satisfactory sale. The best brokers



apparently prefer to be exclusive representatives of their principals in the cities where they are located.

With the growth of large flour mills, and the shutting down of many small ones, the flour broker is probably losing his importance slightly as time goes on. The development of large bakeries, which buy flour in huge quantities, also contributes to this tendency, inasmuch as they prefer to go direct to mills whenever possible. A few flour brokers are turning into specialized flour jobbers, who sell to large retailers and to wholesale grocers and bakers. In other words, instead of handling on a brokerage basis, they are taking title to the goods, tying up their capital, and assuming the merchandising risk of price fluctuation — functions not ordinarily performed by brokers.

The marketing of canned goods illustrates about as well as any trade the usefulness of the broker as a marketing intermediary between manufacturer and jobber. The canning of fresh vegetables and fruits is done principally by a large number of small packers or canneries, scattered all over the country from Maine to California, each depending on a local supply of raw material; the output of each packer is relatively small; the business is intensely seasonal; and both quantity and quality of pack vary from season to season. Furthermore, on account of the variations in crop conditions in different parts of the country during a single season, the market area for a single packer varies accordingly; some years he can sell his output in nearby markets, and other years he can do better by going to more distant markets. It is not difficult to understand that it would be too expensive for each packer to maintain a sales organization which could market its output efficiently to the hundreds of grocery jobbers all over



the country, and that he finds the broker a serviceable agent.

In the largest markets brokers are found who handle nothing but canned goods, including canned fish, but in many cases they also handle dried fruits, and to a certain extent a variety of other products. The canned goods broker usually represents a fairly large number of packers, fifty to sixty being a common number, at least in Chicago, and some of them representing over one hundred.<sup>1</sup> The brokers in this trade do some financing, by making advances to packers, tho this practice is apparently not so common as is usually thought. Most packers give exclusive sale to a single broker in each city or territory, but this is not a fixed rule. The usual brokerage fees average about 2½ per cent on canned fruits and vegetables and 5 per cent on canned salmon. Brokers having the best reputation do not buy goods on their own account, except in some cases to have a small supply on hand to fill rush orders.

Canned goods brokers sell almost entirely to wholesale grocers, who on the whole seem to prefer to buy from them, rather than to go direct to packers. When a wholesale grocer in Chicago, for example, is in the market for peas, he can call up from fifteen to twenty brokers who can immediately show him a great quantity of samples, and quote prices (subject to confirmation). This is much cheaper and more expeditious than sending buyers out into the country. There is a slight tendency for very large packers of canned goods to establish their own sales organizations and thus reach the trade direct, such as Burnham and Morrill, Heinz, Beechnut, and the meat packers, etc., but it will be noticed that these companies do not sell perishable fruits and vegetables.

<sup>1</sup> The data on canned goods brokers are drawn largely from a paper by Mr. D. D. Sells written under the supervision of the author in Chicago during the summer of 1916.

It is more difficult to explain the need of brokers in the refined sugar trade than in the other trades described, inasmuch as the manufacturing business is concentrated into a few large companies, each of which sells in large volume. And yet, outside of Boston and New England, the refiners sell to wholesale grocers and large manufacturers who use sugar, almost entirely through brokers. In many parts of the country, however, these brokers have become so closely allied to the refiners, that they practically constitute their sales organizations, paid on a brokerage rather than on a salary basis. In spite of the fact that there is but a small number of refining companies, one of which is much larger than the others, the fact that brokers combine the output of several plants, goes far to explain their existence, especially as many sugar brokers outside of the very largest markets combine other products such as canned goods and dried fruits with their sugar business.

In New York City, the sugar brokers are of the pure type, i. e., they are not tied in any way to individual refiners. In the trade, New York is called an "open market"; the broker gets an order for a carload of sugar from a wholesale grocer, and he places the order with whichever refiner makes the best price. In contradistinction to this, Chicago is a "closed market"; in other words, each refiner sells through a single broker — giving that broker exclusive territorial rights. Oftentimes such a broker sells no other sugar and no other product than the output of the refiner with which he is tied, and it is under this arrangement that the broker becomes to all intents and purposes the sales representative of the refiner, rather than a broker in the true sense of the term, or than even a manufacturer's agent, who ordinarily handles articles for a number of different manufacturers. In Chicago, for example, the American

Sugar Refining Company has an office of its own which has general supervision of sales in that territory, but all sales are actually made through a "broker" who has his office adjacent to that of the American Company.

On the other hand, some of the refiners have exclusive brokers of this sort in interior cities, but they are allowed to handle — not any other sugar — but other articles such as canned goods. One refiner explained that in that way he was able to command all the time he needed of a \$6000 man for \$3000 — an admirable illustration of the economies effected by combining the sale of articles made by different manufacturers through one middleman. The brokerage fee in this trade is ten cents per barrel, which amounts to only about one-twentieth of a cent a pound, or considerably less than one per cent of the value.

This trade has many other interesting features. Sugar is marketed from refiner to consumer on perhaps narrower margins than any other commodity, and yet it passes through the hands of a large number of successive middlemen, indicating that functional specialization is not inimical to low marketing cost, and may even be largely responsible for it. In fact, two of the refiners (the Federal and the National) have no sales departments of their own, even for reaching brokers. The Federal, for example, employs a commission house (engaged largely in foreign trade) to attend to its selling, and pays this house on a commission basis. In such a case there are really two middlemen between refiner and wholesale grocer. Furthermore, raw sugar is also handled by a special class of brokers, who sell for the importers to the refiners. The principal reason for this is that the importer does not have a steady supply; he may have five thousand tons today, and no more for a week. The broker, on the other hand, representing a

number of importers, always has sugar to sell. One other feature of the sugar trade is the fact that in many of the largest cities there have developed specialized sugar jobbers, who buy through the brokers, and deal in nothing but sugar.

Green coffee is another product that is sold principally through brokers — from the importer through the broker to the coffee roaster (usually the wholesale grocer). Here again, the principal economy is due to the fact that the broker sells for a number of different houses. One or two of the largest coffee importing houses have their own sales organizations with salaried representatives in all large cities, who sell direct to roasters. One large New York house has its own representatives in five of the largest trade centers in the country (including New York) and uses brokers in other cities. It is said that another large New York importer tried to establish his own selling organization in certain large cities, but found it too expensive, and went back to the brokers.

Usually a coffee broker has exclusive sale for his principals in the market where he is located. Tho the importer is his principal, he may be regarded from another point of view as the buying agent of the wholesale grocer, who depends on him for information from day to day, about trade conditions. Prices have to be confirmed by the principal. The customary brokerage fee is fifteen cents a bag of one hundred and thirty-two pounds, which amounts to about one-eighth of a cent a pound, or about 1 per cent of the value. Sometimes the coffee broker also represents a foreign exporting house direct, rather than a domestic importer. Roasted coffee is not sold through brokers.

Tho there are other examples of marketing intermediaries between manufacturer and jobber than those described above, enough has been said to indicate the reasons for the existence of such agencies, and to show that they perform very important services for manufacturers. That they are decreasing in importance in some trades is true, especially in the textile trades where mills are becoming less and less dependent on commission houses for financial support, and in the case of branded and advertised articles, where the manufacturers' agent is losing ground. But even in these trades, marketing intermediaries are bound to continue in existence indefinitely, especially to serve the smaller manufacturers. The middlemen described in this paper admirably illustrate the value of functional specialization in marketing.

L. D. H. WELD.

SHEFFIELD SCIENTIFIC SCHOOL OF  
YALE UNIVERSITY.

## THE USE OF PRIVATE TOKENS FOR MONEY IN THE UNITED STATES

### SUMMARY

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### I. DEFINITION AND VARIETIES

In considering the relation of the money of a country to the welfare of the people of that country, frequently too little attention is paid to the so-called details of the currency system, and particularly to the lack of small change. As touching everyday welfare, however, it may be said that the people are almost as much concerned with the supply of their pennies as they are with that of their dollars. It has been for the most part the scarcity of small change which has called into existence private tokens used for money.

The early use of the term "token" was to describe counters or jettons issued by traders to serve as small change. Gradually the term lost some of this primary meaning and came to be used by economists to describe the smaller denominations of money whose bullion value is less than the money value. It is still so used by some writers, but the best modern practice is to apply the term "fiduciary" to this subsidiary money and reserve "token" for its earlier meaning. For the purposes of this discussion, then, the term "token" as

applied to money will mean a medium of exchange unauthorized by law and issued by private individuals or concerns, which comes to be recognized as a sort of money and practically serves that purpose.

A general definition must connote, and thus there are left particular questions to be considered more specifically. The line of demarcation, for example, between the issuing of tokens and counterfeiting is by no means always clear. The difficulty is all the more evident when it is remembered that tokens frequently resemble the authorized money of the country, and that counterfeits are not always exactly like the money they seek to imitate. The legal prohibitions of counterfeiting are the most satisfactory criteria for distinguishing between what is counterfeit and what is token. In the United States, at any rate, the law has been very specific in defining what constitutes counterfeiting.<sup>1</sup>

The second problem comes up in the matter of coins issued by private concerns or persons under right of patent from the king, or by authorization of a branch of government acting as if under full sovereign authority. This practice was followed frequently during the colonial period both by residents in England and by the American settlers.<sup>2</sup> It would seem that the practice formerly carried on by the United States of letting out

<sup>1</sup> The case of the Igorot copper coins of the Philippine Islands is particularly puzzling. The natives of Lepanto-Bontoc and Nueva Viscaya used the surface deposits of copper to make round, flat discs which they circulated as money. They came to be used extensively in central and northern Luzon and elsewhere. In one of his orders the Governor-General of the Islands referred to them as counterfeits. So far as they depended for their circulation on their imitation of the legal coins they were counterfeit; but the widespread knowledge of their true origin and nature, coupled with the fact that they were long tolerated, would seem to make them tokens. Cf. E. W. Kemmerer, *Second Annual Report of the Chief of the Division of Currency to the Treasurer of the Philippine Islands* (1905), 19.

<sup>2</sup> In 1633 George Sanderson and George Hull coined money under contract with the General Court of Massachusetts. Lord Baltimore issued his own coins for use in Maryland. In England William Wood was granted the right by George I to coin money for the "Island Dominions and Territories in America." Cf. S. Crosby, *Early Coins of America*, and R. Ruding, *Annals of the Coinage of Great Britain* (3d ed.), 2: 72.



by contract parts of the process of coining money is sufficient justification for excluding money of authorized manufacture, even tho it was issued by private persons. The essential characteristic of tokens as here considered is their unauthorized issue.

Two classes of tokens are issued: tradesmen's tokens, and political, or general, tokens. Tradesmen's tokens are substitutes for money issued by business firms with the name and place of business of the issuer, and frequently with an advertising legend describing the nature of the issuer's business. The distinguishing features are, that the issuer is known, and that their circulation, certainly at first, is usually confined to trade with the issuing firm. Political, or general, tokens are issued by individuals or firms directly for gain, and are of two kinds. The first variety are usually of one-cent value, and because they are issued without an indication of their source, they tend to circulate more widely than tradesmen's tokens. The term "political" is often applied to them because many of them bear a patriotic legend or an inscription commenting on some aspect of the political situation. Gold tokens, usually coined in \$2.50, \$5, \$10, and \$20 pieces, furnish the second class of general tokens. They do not bear political legends.

## II. TOKENS ISSUED PRIOR TO 1800

From the settlement of the American Colonies to the beginning of the nineteenth century the lack of an adequate supply of coins was continually a cause for dissatisfaction. A field so fertile for the utilization of token money could not long remain unworked.<sup>1</sup> The

<sup>1</sup> For an account of the experience of England and Canada under similar circumstances, cf. England: Palgrave's Dictionary of Political Economy, 3: 547; A. E. Outerbridge, Jr., *Curiosities of American Coinage* (pamphlet), 9, 10; Hunt's Merchants' Magazine, 7 (1842): 273; Chamber's Journal, (vol. xi), chap. 71 (1894): 662-665; Ruding, *Annals of the Coinage of Great Britain*, passim.; and Bankers' Magazine (N. Y.), 15 (1860): 433-438. Canada: R. W. McLachlan, Presidential Address, in *Transactions of the Royal Society of Canada*, section 2, serie 3, June, 1915, 9: 51-60.



tokens issued during this period may be classified as to origin into: (1) those of foreign origin, and (2) those of home manufacture.

*Tokens of foreign origin.* — It appears that all of the imported tokens, with the exception of the "New Yorke Token" and the "New England Stiver," came from Great Britain. The New Yorke half-penny token was probably of Dutch origin. It is placed in the period 1664 to 1710 when New York was spelled with an "e." It was issued apparently to give relief during the period of great scarcity of change from 1700 to 1706, but it probably did not achieve a very wide circulation.<sup>1</sup> The New England stiver is supposed to have originated in Holland to supply small change to Dutch merchants in New Amsterdam during the period of Dutch control (1623-64), and, as in the case of the New Yorke token, its circulation was probably very limited.<sup>2</sup> A law supposedly directed in part against this token was passed by the Council and House of Representatives of Massachusetts, March 21, 1700, providing that in three months all tokens were to be redeemed at the highest rate for which they had passed, and persons continuing to put out tokens were to be fined not exceeding £50, or be imprisoned not exceeding six months.<sup>3</sup>

As early as 1681 English tokens, probably issued at Dublin, were brought to this country by Mark Newby, who led a party of emigrants from Dublin to New Jersey. These halfpence, on account of the scarcity of small change, were made legal tender up to five shillings.<sup>4</sup> The second earliest tokens of English origin were the "Carolina Elephants," probably issued at London in 1694. They are held by some not to have been used

<sup>1</sup> Historical Magazine, 5 (1861): 294, 295 and Crosby, 345, 346.

<sup>2</sup> Ibid., 347.

<sup>4</sup> Ibid., 135-138.

<sup>3</sup> Ibid., 114, 115.

in this country as money,<sup>1</sup> but there are grounds for believing that they were so used.<sup>2</sup>

The other type of tokens manufactured in Great Britain for use in this country were all put into circulation after 1776,<sup>3</sup> and in fact one variety even after the establishment of our mint. They are the *Nova Constellatio*<sup>4</sup> coppers struck at Birmingham in 1783, 1785, and 1786;<sup>5</sup> the *Georgius Triumpho*, probably intended to commemorate the success of George Washington, dated 1783;<sup>6</sup> the *Bar Cent* or U. S. A. coppers, also struck at Birmingham, in 1785;<sup>7</sup> the *Auctori Plebis*, struck in 1787;<sup>8</sup> the *Nova Eboraces*, or New York coppers, issued in 1787, probably the private speculation of some English merchant;<sup>9</sup> and two types of Kentucky tokens, 1796, one type issued at Birmingham and the other at Lancaster. Crosby says, "In beauty of design and execution, these tokens are unsurpassed by any piece issued for American circulation."<sup>10</sup> The names given these issues by numismatists come from the designs or legends they bear. The *Nova Constellatio*s carry the legend, *NOVA CONSTELLATIO*, sometimes on the obverse and sometimes on the reverse. The *Bar Cent* usually had on the obverse a large, Roman, inter-linked U S A, and on the reverse thirteen horizontal bars. Probably the most important of these issues was the *Nova Constellatio*s. Crosby, quoting from Bushnell's *Numismatic Notes*, says: "The *Nova Constel-*

<sup>1</sup> Crosby, 337, 338.

<sup>2</sup> "Its history and object is unknown, but whether an enterprise of the Lords Proprietors or of individuals, it was doubtless intended for a circulating medium." H. N. Johnson, *Western Reserve and Northern Ohio Historical Society, Publications*, 2: 69, 70.

<sup>3</sup> The weight of these tokens ranged from 85 to 142 grains.

<sup>4</sup> To be distinguished from the early patterns for United States coinage of the same name. Cf. Crosby, 307, 308.

<sup>5</sup> *Ibid.*, 331-333.

<sup>6</sup> *Ibid.*, 341, 342.

<sup>7</sup> *Ibid.*, 333, 334.

<sup>8</sup> *Ibid.*, 342, 343.

<sup>9</sup> *Ibid.*, 340, 341.

<sup>10</sup> *Ibid.*, 344.

latios were made in Birmingham, in England, and the dies were cut by Wyon, of that place. Over forty tons were issued from one die alone, and many more from another. They were manufactured by order of a gentleman of New York, who is believed to have been Gouverneur Morris."<sup>1</sup>

Records have been found of only two instances of tradesmen's tokens of foreign manufacture issued in this country. The first of these were put into circulation by the firm of William and John Mott, 240 Water Street, New York City, in 1789.<sup>2</sup> On the obverse they bore the legend, MOTTS, N. Y., IMPORTERS, DEALERS, MANUFACTURERS, OF GOLD AND SILVER WARES; reverse, CHRONOMETERS, CLOCKS, WATCHES, JEWELRY, SILVERWARE. The firm of William Talbot, William Allum, and James Lee, 241 Pearl Street, New York City, followed suit in 1794 and 1795.<sup>3</sup> These coins, considering their localized source, obtained a circulation of considerable extent.<sup>4</sup>

*Tokens of home manufacture.* — The reference to the earliest American tokens of home issue is in Felt's *Historical Account of the Massachusetts Currency*. The Massachusetts mint was closed in 1697 "by the hand of Royalty." Felt says: "At this date [1701], there was a scarcity of change. Such an occasion was followed with its usual consequences. Regardless of their irregular example and bent on their own convenience and gain, not a few individuals stamped pieces of brass and tin and palmed them on [the] community at a penny each. They were speedily commanded by the Legislature to withdraw from their course or be fined and imprisoned."<sup>5</sup> It was during this period that the Dutch

<sup>1</sup> Crosby, 331.

<sup>2</sup> One-cent copper, 153 grains.

<sup>3</sup> Weight, 108 to 171 grains.

<sup>4</sup> C. I. Bushnell, *Historical Magazines*, 3 (1859): 299-301, and Crosby, 334-336.

<sup>5</sup> J. B. Felt, *Historical Account of Massachusetts Currency*, 55.

New Yorke token above referred to probably circulated. Virginia furnishes two further examples of tokens of home manufacture. The first were issued in 1714 by Richard Dawson, of Gloucester (county ?), Virginia. They were of one shilling value, and probably of little importance.<sup>1</sup> In 1773 and 1774 many halfpennies, and probably a few pennies,<sup>2</sup> were issued in the same colony. It is presumed that they were not authorized coins, because in 1782, Thomas Jefferson wrote: "In Virginia, coppers have never been in use."<sup>3</sup>

An interesting issue are the Higley, or Granby, tokens, coined from 1737 to 1739 inclusive by John Higley (or Highley), of Granby, Connecticut. It is claimed for the issuer of these tokens that he was the first coiner of copper money in America. It seems that the authorities paid no attention to this issue, and Higley was able to make a comfortable living by his enterprise.<sup>4</sup> It was probably the coins of the earlier years that bore the legend, "The value of three pence," whereas later the inscription was changed to, "Value me as you please." As an explanation of this change the very plausible story is told that Higley was a frequenter of a public house where he paid for his drinks with his own money. His trade became so heavy that objection was raised to accepting longer the tokens at their face value — three pence. Soon afterwards Higley appeared with coppers bearing the words, *VALUE ME AS YOU PLEASE — I AM GOOD COPPER*.<sup>5</sup>

An issue which gives a good insight into the currency situation just after the Revolution is the Annapolis

<sup>1</sup> Crosby, 323.

<sup>2</sup> *Ibid.*, 338-340.

<sup>3</sup> Weight, 131 grains.

<sup>4</sup> In the latter part of 1739 it appears that Higley, feeling that his private coinage was not safe because not sanctioned by law, was connected with the attempt of John Read to get authority to set up a mint. *Ibid.*, 206, 207.

<sup>5</sup> H. N. Johnson, *Western Reserve and Northern Ohio Historical Society, Publications*, 2 (1879): 70. Crosby, 324-327.

tokens issued in 1783 by I. Chalmers, a goldsmith of Annapolis, Maryland. The scarcity of change had become so acute that Spanish dollars were being cut into halves, quarters, and eighths. Expert cutters had begun to do a flourishing business by cutting the dollars into five fourths, nine eighths, or ten eighths, deriving a gross profit of from 12½ to 25 per cent. This practice was carried on to such an extent that the people became distrustful of the cut money, and were glad to give the fractional parts of the Spanish dollar for these silver tokens of uniform value. The Chalmers coins were issued in at least three denominations — shillings, sixpence, and threepence.<sup>1</sup>

After the Revolution and before the beginning of the nineteenth century, a few other silver and many copper coins were issued both by states and by individuals.<sup>2</sup> This practice was followed to such an extent that laws were passed by Pennsylvania, Connecticut, and New Jersey prohibiting in general the circulation of coins not expressly authorized.<sup>3</sup> The New Jersey law was passed partly to protect the right of issue granted Thomas Goadsby (Goodsby), Albion (Albian) Cox, and Walter Mould.<sup>4</sup> Pennsylvania's law declared: "Whereas, Divers ill-disposed persons have manufactured or imported into this State quantities of base metal, in the similitude of British half-pence, to the great depreciation of that coin, to the injury of the community in general and the poor in particular such practices having a natural tendency to raise the necessaries of life and introduce new confusion into the currency of the Country," all public officers were prohibited from receiving

<sup>1</sup> Crosby, 328-330; Bankers' Magazine (N. Y.), 6 (1851-1852): 448, and referred to in Hunt's Merchants' Magazine, 46 (1862): 592, as of 1838, but evidently a misprint.

<sup>2</sup> Outerbridge, 5; Hunt's, 20 (1849): 200 and 46 (1862): 247.

<sup>3</sup> Crosby, 171-174, 219, 220, 281, 282, and 294, 295.

<sup>4</sup> Bankers' Magazine, 10 (1855): 316 and 16 (1861): 254.

such money in payment of taxes or other public dues, and the faithful inhabitants of the state were asked to refuse to accept it. The officers were ordered to make inquiry for such persons "that they may be brought to speedy and condign punishment."<sup>1</sup> The British halfpence referred to in this law were made at Birmingham, and sent by the thousand to this country. They were of base metal and lighter than the authorized British halfpence. "We are told that no packet arrives from England without some hundred weight of base halfpence."<sup>2</sup> The trouble continued up to the establishment of the United States Mint.

### III. TOKENS ISSUED FROM 1800 TO 1861

The statement has been made that after the tokens issued by Mott, and by Talbot, Allum, and Lee, no more tradesmen's tokens were issued until 1825,<sup>3</sup> but the facts during the period of the War of 1812, and subsequently, do not seem to bear out this statement.

*War of 1812 tokens.* — Up to the year 1812 very little money had been coined at the United States Mint,<sup>4</sup> and much of this had been exported while yet new and full-weight. The money remaining to serve for small trade consisted of worn joes, doubloons, guineas, and other foreign coins. The situation soon became acute. At the opening of the war, the New England ports were the only ports of egress, and New England manufacturers

<sup>1</sup> For the law, see Crosby, 172.

<sup>2</sup> American State Papers, 7: 101.

<sup>3</sup> W. C. Prime, *Coins, Medals, and Seals*, 106. It is quite possible that Prime was referring to tokens in a narrower meaning of the term, excluding paper tokens. The tokens referred to as issued in 1825 were a few struck in commemoration of the completion of the Erie canal, and are without particular significance.

<sup>4</sup> The total gold and silver amounted to a little over ten million dollars. The small change (25, 10, and 5 cent pieces) constituted a very small portion of this, — less than one-half million dollars. J. R. Snowden, *Mint Manual of Coins of All Nations*, table facing page 128.

were supplying the remainder of the country. The movement of the money, then, was from the South and West to New England. With practically all our exports shut off, we were forced to pay for our imports in specie. Partly to save the coin for that purpose, specie payments were suspended in 1814.<sup>1</sup> Soon afterwards the Spanish joe was selling at a premium of 9 per cent on the Atlantic seaboard, and the United States dollar was selling at a premium of 6 per cent.<sup>2</sup> In a letter dated October 17, 1814, the Secretary of the Treasury wrote to the Chairman of the Ways and Means Committee: "It may in general be affirmed — that there exists at this time no adequate circulating medium common to the citizens of the United States. The moneyed transactions of private life are at a stand; and the fiscal operations of government labor with extreme inconvenience."<sup>3</sup> By 1815 the premium on specie had gone to 12 and 14 per cent.<sup>4</sup> The Director of the Mint in his report for the calendar year 1815 said small silver coins had almost totally disappeared.<sup>5</sup> McMaster describes the situation:

Locking up the coin by the banks bore heavily not only on the Treasury Department and the public creditors, but on the great body of the people as well. It stripped the country of small change; not a sixpence, not a shilling, not a pistareen, was anywhere to be seen in the region of the suspending banks. As no financial institution could, at that time, legally issue bills of a lower denomination than one dollar, the place of the silver pieces had to be supplied by an illegal issue of small paper bills. — Merchants, tradesmen, manufacturers, stage-owners, tavern-keepers, ferrymen, and unchartered banks followed, and before spring came the whole seaboard south of New England was flooded with paper money of the worst description.<sup>6</sup>

<sup>1</sup> Niles' Register, 7 (1814): 10.

<sup>2</sup> J. B. McMaster, *History of the People of the United States*, 4: 296.

<sup>3</sup> Niles' Register, 7 (1814): 104.

<sup>4</sup> Ibid., 9 (1816): 358.

<sup>5</sup> Ibid., 9 (1816): 3.

<sup>6</sup> McMaster, 4: 297, 298.



The paper tokens thus issued usually took a form somewhat as follows:<sup>1</sup>

SIX-AND-A-QUARTER CENTS	A GENERAL ASSORTMENT OF GROCERIES			SIXTEEN FOR ONE DOLLAR
	6½ cts.	Chest of Tea and hogshead	No. 233	
	I promise to pay the bearer on demand, in groceries, or Philadelphia bank-notes, at No. 130 North Water Street, six-and-a-quarter cents.			
	JOHN THOMPSON			
	Phila., December 10, 1814.			

This money in paper form was likely to tear and wear out easily, and thus it was less likely than metal tokens to be presented for redemption.<sup>2</sup> It also possessed for the issuers the virtue of inexpensiveness. With the passing of the emergency which called forth this paper money, the states began to take steps to get rid of it. South Carolina passed a law providing that all such paper money should be void after May 1, 1817. North Carolina prohibited the issue of bills, orders, tickets etc., by individuals and corporations to be used as small change. Virginia, New York, Pennsylvania, and Maryland at the same time were dealing with similar problems.<sup>3</sup>

By the latter part of 1817 the stringency was practically over. Specie payments had been renewed, and the mint was turning out an increasingly large supply of fractional money. By the middle of November copper cents were available at the mint "to any moderate amount."<sup>4</sup> The Director of the Mint in his report for

<sup>1</sup> McMaster, 4: 298. For a full discussion of the disordered currency of the period, see *ibid.*, chap. 30.

<sup>2</sup> R. P. Falkner, *Political Science Quarterly*, 16 (1901): 316, 317.

<sup>3</sup> McMaster, 4: 302-307.

<sup>4</sup> *Niles' Register*, 13 (1817): 193.



the calendar year 1820 said the supply of copper coins had increased far beyond the public demand.<sup>1</sup> That the shortage had not been entirely met by 1820, however, is shown by the report of the Secretary of the Treasury for that year.<sup>2</sup> He said that in Philadelphia there was probably an abundant supply of small change, but that in Washington tickets issued by corporations and dollar bills torn in two furnished the bulk of the change. As late as 1820 it was said that "rags 'filthy dowlass,' will soon be in request again; for there is a real scarcity of change, or of anything that passes for money, under bank notes for five dollars."<sup>3</sup> These conditions were being rapidly alleviated by the coinage of fractional money, and the next real period of tokens may be described as the Jacksonian era.

*Tokens of the Jacksonian era.* — Conditions leading up to the issue of these tokens were essentially similar to those preceeding the War of 1912 period. In general up to the time of the laws of 1834 and 1837, the pressure for the export of coin from the United States fell largely upon gold because of the under valuation of that metal. Conditions were now changed. In New York City in 1834 silver fifty-cent pieces were selling at a premium of 1 per cent for export.<sup>4</sup> By August this premium had reached 8½ per cent.<sup>5</sup> In May, 1837, the majority of the banks suspended specie payments, and the country was facing an actual shortage of available money for carrying on its business.<sup>6</sup> To relieve the stringency caused by this inadequate supply of change, tokens again made

<sup>1</sup> Niles' Register, 19 (1821): 430.

<sup>2</sup> Ibid., 22 (1822): 34.

<sup>3</sup> Ibid., 18 (1820): 42, 43.

<sup>4</sup> Ibid., 47 (1834): 147 and 48 (1835): 74.

<sup>5</sup> Ibid., 52 (1837): 369.

<sup>6</sup> "There is an awful pressure for money, in most of the cities. The shavers exact their pound of flesh." Ibid., 50 (May, 1836): 185.

The coinage of silver for the quarter ending June 30, 1836, was \$1,235,000, and only \$77 of this was in small change. Ibid., 50 (1836): 379.

their appearance. As many as 164 varieties of this period are recorded. Of these 71 are general tokens, and 93 are tradesmen's tokens.

The legends and designs on the general tokens furnish a good commentary on the political and social conditions of the period. They refer to the Second United States Bank, the suspension of specie payments, Benton's "mint drops," slavery, etc. In New England these tokens were called "Bungtown Coppers," in New York "Shinplasters," and in New Jersey "Horse-heads."<sup>1</sup> One coin dated 1834 is particularly striking. On the obverse it has the gaunt figure of President Jackson with a sword in one hand and a money bag in the other. The legend reads, A PLAIN SYSTEM, VOID OF POMP. The reverse bears the emblem of a stubborn jackass, branded on the haunches with the letters L.L.D., an allusion to the degree conferred upon Jackson by Harvard University. The emblem bears over it, ROMAN FIRMNESS, and around the edges are Jackson's well-known words, THE CONSTITUTION AS I UNDERSTAND IT. Another token bears on the obverse, MY SUBSTITUTE FOR THE UNITED STATES BANK. On a bust of Jackson is, MY and below, the words, EXPERIMENT / MY / CURRENCY / MY / GLORY. On the reverse appears, PERISH CREDIT. PERISH COMMERCE, and a boar, running, with MY / THIRD HEAT written on his side; above, MY / VICTORY, below, DOWN WITH THE / BANK. Date, 1834. An interesting type, because it indicates the sentiment already forming at that time against slavery, bears on the obverse a slave woman in chains, kneeling, and the legend, AM I NOT A WOMAN AND A SISTER. On the reverse the inscription is, UNITED STATES OF AMERICA, and within an olive wreath, LIBERTY / 1838.<sup>2</sup>

<sup>1</sup> Prime, Coins, Medals, and Seals, 108.

<sup>2</sup> For further types, see Catalogue of Coins, Tokens, and Medals, 1914, 118, 119.

Many of these tokens were issued by individuals, but that some concerns made it a business to coin them is indicated by the following extract:

These tokens were issued from the Waterbury, Conn., button factory, of the Scovilles, chiefly, if not entirely, as we are informed, and in large quantities. They passed as currency, being of good metal and weight, and though of insignificant nominal value as compared with the bank bills of the day, they are yet occasionally found in circulation [1879], while the bills exist only as curiosities in albums, or are laid away in some corner as reminders of days when bank note values, like Jonah's gourd, shrank out of existence, often even in a night.<sup>1</sup>

In Baltimore these general tokens were advertised in the newspapers by commission houses. They were retailed to all comers, usually in bushel lots at fifty to sixty-two and one-half cents per hundred.<sup>2</sup> As a result of these wholesale dealings the solicitor of the Treasury directed the United States attorney at Baltimore to institute legal proceedings under the law of May 8, 1792.<sup>3</sup>

More numerous as types, but probably not more numerous in total output, were the tradesmen's tokens.<sup>4</sup> Sometimes, in addition to the ordinary legends, they bore trite sayings, as "By trade we prosper" and "Time is money." These tokens were made usually of copper and brass, but sometimes from tin, lead, German silver, or silver; and in value they were predominantly

<sup>1</sup> H. N. Johnson, *Western Reserve and Northern Ohio Historical Society, Proceedings*, 2: 73. For a description of one type of their issue, see *Catalogue of Coins*, etc., p. 119.

<sup>2</sup> Quoted from the *New York Journal of Commerce*, in *Niles' Register*, 53 (1837): 194.

<sup>3</sup> This law declared that "no copper coins or pieces whatsoever, except the said cents and half cents, being those coined at the mint of the United States, shall pass current as money, or shall be paid, or offered to be paid, or received in payment, for any debt, demand, claim, matter, or thing whatsoever; and all copper coins or pieces, except the said cents and half cents, which shall be paid, [etc.], shall be forfeited; and any person by whom any of them shall have been so paid, [etc.], shall also forfeit the sum of ten dollars . . ." *Joseph Story, Laws of United States* (3d ed.), 1: 266.

<sup>4</sup> For a description of several types of these tokens, see *Catalogue of Coins*, etc., 120, 121.

one cent,<sup>1</sup> but some were three, five, and six cents. They were seldom dated. The states from which issues were in existence as late as 1858, with the number of issues, are: New York 126 (at least 107 of these in New York City), Pennsylvania 19, Massachusetts 12, Connecticut 5, Louisiana 5, Virginia 4, Illinois 4, New Hampshire 3, Rhode Island 3, Maryland 3, Michigan 3, New Jersey 2, South Carolina 2, Georgia 1, Mississippi 1, and Ohio 1.<sup>2</sup>

As the government output of small change increased,<sup>3</sup> and with the return of normal times, the circulation of these tokens, both tradesmen's and general, fell off. In the decade following the close of the Jacksonian era, 1840-1850, the issue of tokens was apparently very sporadic — for instance, 1846 in South Carolina, 1847 and 1849 in California, and 1850 in Wisconsin. Scattered examples of this sort cannot be taken as evidence of an insufficient currency, but rather as an indication of local conditions or the peculiar circumstances of the issuer.

*Tokens issued after the California gold discoveries.* — Of all periods so far discussed it seems that the period 1850-1853 ought to have been most prolific in tokens. Indications are not wanting that a large supply was put out, but definite evidence is very scarce. As previously indicated, the coinage law of 1834 by making the coinage ratio between silver and gold approximately 16 to 1 put a premium on silver, but this premium did not

<sup>1</sup> Most of these tokens were size 18 (that is, 18/16 of an inch in diameter), — the size of the copper cent of that time.

<sup>2</sup> C. I. Bushnell, *Tradesmen's Cards, Political Tokens, etc.*, 13-74.

<sup>3</sup> Mint coinage of copper cents:

1836 .....	2,111,000
1837 .....	5,558,300
1838 .....	6,370,200
1839 .....	3,128,661

Snowden, *Mint Manual*, facing page 128.

During May, 1838, 2,229,500 small change pieces were coined, and the mint was still busily engaged on account of the strong demand. *Niles' Register*, 54 (1838): 258, 259.

become of very great significance until the discovery of gold in California. The change was probably further intensified by the substitution of silver for gold in Holland.<sup>1</sup> The banks then found it profitable to substitute gold for silver in their reserves, and export the silver. As the premium on silver rose, the silver coins, even down to the smallest denominations, were to a certain extent driven out of circulation and out of the country. Late in 1850 or in January, 1851, the postmaster of New York City wrote to the director of the Philadelphia mint asking for a supply of gold dollars to be used as change.<sup>2</sup> By February of the same year brokers in Philadelphia were advertising to purchase silver coin at a premium.<sup>3</sup> S. D. Ingham, a former secretary of the treasury, wrote:

We have now approached a crisis, in which, by reason of the over-valuation of gold in the coins and the increased production of gold in California, it has so depreciated, in proportion to silver, that the latter commands a premium of three per cent, and is rapidly being withdrawn from the banks and public treasury for exportation, and a few months will probably leave nothing for the small payments and exchanges, except some light foreign coins, and their companions paper tokens, or tickets to be issued by every one who pleases.<sup>4</sup>

In his report for the fiscal year ending June 30, 1852,<sup>5</sup> the Secretary of the Treasury pointed out the fact that the continuing production of gold had driven out of circulation all full-weight silver, and that nothing remained as change except worn pieces of Spanish coinage, many of them reduced in weight 10 or 20 per cent of their nominal value. Specific examples of the scarcity of change are furnished by one Lowell manufacturing company which spent \$30 per month as premium on small

<sup>1</sup> Quoted from the London Times, Nov. 26, 1850, in *Bankers' Magazine*, 5 (1850, 1851): 677.

<sup>2</sup> Hunt's, 24 (1851): 245, 246.

<sup>3</sup> *Ibid.*, 266.

<sup>4</sup> Quoted from article entitled, "Observations on the Currency of the United States," *Ibid.*, 25 (1851): 290.

<sup>5</sup> Finance Report, 1851, 1852, 11.

change with which to pay off its employees, and by two railroad companies which paid a premium of \$60 and \$80 per month for small change to be used in their depot in Boston and on their roads. All railroads had to count as part of their operating expenses the premium to be paid for change.<sup>1</sup> The relief came from two sources: first, the issue of small denomination bank-notes, and second, the issue of tokens. After referring to these new banks which had sprung up to meet the current need and at the same time to fatten the pocket-books of the incorporators, an article in the February, 1853, number of *Hunt's Merchants' Magazine* says:

Under the shadow of these new banks, a large batch of private shinplasters have been issued to the amount of between one and two millions of dollars, which at present find a ready circulation throughout the interior. . . .

Nearer the Atlantic coast, fractional bills have been issued by individuals and firms doing business which requires a large amount of small change, for the purpose of supplying the want of silver coin. . . . They are . . . illegal, and their currency should be discountenanced.<sup>2</sup>

The agitation of the authorities acquainted with the needs of the currency system, reënforced by this scarcity of change, led to the passage of the law of 1853, which provided for a light-weight fractional silver coinage.<sup>3</sup> The enormous increase in the coinage of silver<sup>4</sup> gives every reason for crediting the statement published in the Philadelphia papers early in 1854 that the United States Mint had fully met the complaint of a lack of change.<sup>5</sup>

<sup>1</sup> Secretaries of the Treasury and others continually pointed out that the crux of the whole matter lay in the issuing of full-weight subsidiary coins. Cf. Hunt's, 25 (1851): 260 and Finance Report, 1851, 1852, 11.

<sup>2</sup> Hunt's, 28 (1853): 211.

<sup>3</sup> The act reduced the standard content of the fifty-cent pieces from 206.25 to 192 grains, and that of the other smaller silver coins proportionately.

<sup>4</sup> Coinage:

Year	Halves	Quarters	Dimes	Half-dimes
1852	77,130	177,060	1,535,500	1,000,500
1853	3,532,708	15,254,220	12,173,010	13,345,090

Snowden, Mint Manual, facing page 128.

<sup>5</sup> Hunt's, 30 (1854): 224.

They pointed out that there was lying in the mint then, subject to the call of any who desired it, over a million dollars in silver coin. The enactment of the law of 1853 provided relief for the last noteworthy scarcity of subsidiary money prior to the Civil War period.

*Gold Tokens.* — The issue of gold tokens presents a case different from the issue of copper and other small-value tokens in that, with one possible exception, the gold tokens were not made to supply the people with small change. The situation is parallel in that the demand, or at least the pretext, for issuing these tokens came from the failure of the government to provide adequate assaying and coining facilities. The coinage was not widespread at any one time, but was localized and limited in duration both by the production of gold in the particular neighborhood and by the tardiness of the government in providing accessible mints. Because of the cost of setting up a mint and because of the reputation for integrity that had to be built up by private mints, a very few establishments at best could engage in the work.<sup>1</sup>

*Georgia.* — The first coins of this type were minted by Templeton Reid, in Georgia, in 1830. He established his mint in Lumpkin county, near the gold mines,<sup>2</sup> and turned out \$10, \$5, and \$2.50 coins. By weight one test of these coins at the United States Mint gave respectively 251, 123.3, and 60 grains.<sup>3</sup> An assay made in 1842, however, gave the weight of a \$10 piece as 248 grains, 942 / 1000 fine, and the value \$10.06.<sup>4</sup> Just how long Reid continued to coin the Georgia gold is

<sup>1</sup> Many of the facts in the following sections on gold tokens are contained in an article by the writer in the *South Atlantic Quarterly*, April, 1917.

<sup>2</sup> *Catalogue of Coins*, etc., 20.

<sup>3</sup> *Ibid.*, 109. U. S. gold coins at that time weighed (standard weight) 270, 135, and 67.5 grains respectively.

<sup>4</sup> *Outerbridge*, 11.



not certain, because all of the coins are dated 1830. It is known, however, that he was doing business in California in 1849.

*North Carolina.* — In 1831, only one year after Reid began coining, a better known and more prolific mint was set up at Rutherfordton, North Carolina, by Christopher Bechtler. He was a German immigrant from the Grand Duchy of Baden where he had been a gun-maker and goldsmith. G. W. Featherstonbaugh in *A Canoe Voyage up the Minnay Sotor*, published in London, 1847, tells how he was impressed with Bechtler's honesty in making his coins the same value as the coins of the United States.<sup>1</sup> The mint was in the hands of Christopher Bechtler from 1831 to 1842, and then it passed to his son Augustus. By that time, however, its usefulness had been impaired by the establishment of the United States Mint at Charlotte in 1838.

When Bechtler started coining, he issued \$1, \$2.50, and \$5 gold pieces without date, and it was not until 1834 that the date appears on his coins. Afterwards, all his coins appeared as of that date. From 1834 on, the tokens were turned out in three weights, depending on their fineness, as follows:

20 carats	\$5	to weigh	140 grains
21 "	5	" "	134 "
22 "	5	" "	128 "

To designate these different degrees of fineness, the number of carats was frequently indicated by numerals on the coins, and in addition the practice was sometimes followed of putting on the reverse of the 20 carat coins, "North Carolina gold"; of the 21 carat coins, "Carolina gold," and of the 22 carat coins, "Georgia gold."<sup>2</sup>

<sup>1</sup> Thomas Featherstonbaugh, in *Publications of Southern History Association*, 1906, 67-77.

<sup>2</sup> *Catalogue of Coins, etc.*, 109 and Featherstonbaugh, 67-77.

This designation does not appear to have had anything to do with the source of the gold, since all the ore probably came from the same place. In addition to the marks just mentioned, Bechtler stamped on his coins his name and place of business, value, date (after 1834), fineness, and weight.

One test of this coinage indicated an irregularity in the fineness amounting to a loss of about  $2\frac{1}{2}$  per cent.<sup>1</sup> Another test gave an average deficiency in weight from the amount stated on the coin of 4.7 grains,<sup>2</sup> but variations in the fineness may have helped make up for the deficiency. Fortunately, there is a definite and apparently reliable statement of the amount of money coined up to 1840. During this period Bechtler states he coined \$2,241,840.50. The total bullion from the North Carolina mines from the first mint record in 1804 to December 31, 1839, is put at \$10,000,000; so that Bechtler handled approximately one-fourth of the total output.<sup>3</sup> *Hunt's Merchants' Magazine*, 1844, says: "The community having a just confidence in the purity of the metal, much of it is carried by travellers, emigrants, traders and others, into Kentucky, Tennessee and elsewhere . . . . Much of it is believed to be still extant among the farmers, not only in Tennessee and Kentucky, but North Carolina, laid up, with prudent foresight, for future use."<sup>4</sup>

The question of the justification of these enterprises is raised by John Landis, formerly superintendent of the mint at Philadelphia, when he says: "There can hardly have been any reason of necessity for either of these enterprises, since neither community was beyond the reach of assay offices where gold could have been dis-

<sup>1</sup> Featherstonbaugh, 67-77.

<sup>2</sup> Catalogue of Coins, etc., 109, 110.

<sup>3</sup> Hunt's, 11 (1844): 64 and Featherstonbaugh, 67-77.

<sup>4</sup> Hunt's, 11: 64.

posed of."<sup>1</sup> That the private mints were serving an actual need, however, is indicated by the introduction of a bill in 1831 to establish assay offices in the gold regions of North Carolina, South Carolina, and Georgia.<sup>2</sup> Nothing was done, as a matter of fact, until in 1838 the United States mints at Dahlonega, Georgia, and Charlotte, North Carolina, began operations limited to the coinage of gold. Moreover, the Director of the Mint in his report for 1841, in speaking of these Georgia and North Carolina tokens, said: "The coins thus fabricated are below the nominal value marked upon them; yet they circulate freely at this value, and therefore it must be more advantageous to the miner to carry his bullion to the private than the public mints."<sup>3</sup>

*California.* — In California the same process which was carried out earlier in Georgia and North Carolina was repeated on a much larger scale. Gold was discovered far from assay offices and government mints. Transportation was slow, uncertain, and expensive. The people needed money. Pressure was brought to bear to have a mint established, but Congress was slow, and private mints sprang up as much to supply the people with what they demanded as to fatten the coffers of their owners. Because these private tokens did fill a positive need, the California law passed to prohibit their circulation and to close the places of issue was repealed.<sup>4</sup> The various establishments rendered this service with varying degrees of honesty.

At first gold dust and nuggets, weighed and marked with the value of the contents, served for money. There was no great need for small change because of the relative abundance of Mexican silver coins.<sup>5</sup> To supply the

<sup>1</sup> Catalogue of Coins, etc., 20.

<sup>2</sup> Hunt's, 4 (1840): 383.

<sup>3</sup> Niles' Register, 41 (1831): 300.

<sup>4</sup> Horace White, Money and Banking (5th ed.), 8.

<sup>5</sup> Guide to the Numismatic Collection of the United States Mint, at Philadelphia, 1913, 66.

need for larger coins no less than fourteen private mints were established in a very short time.<sup>1</sup> For the most part the issues were in denominations of \$10 and \$5, tho a few \$50 and \$20 pieces were coined. The general style of these coins was the same. They bore the name of the issuer, the value, and some sort of a design — usually the bust of Liberty, the figure of an eagle, or occasionally of some animal. The following table indicates the weights and sizes of the coins issued:

Coin	Weight		Size <sup>2</sup>
\$ 5	115.2 to	132.5 grains	14 to 15
10	129.2 "	263.8 "	13 " 18
20	515.7 "	523.7 "	21 " 22
50	1,287.5 "	1,320.0 "	26 " 28

The fluctuation in weight was due in part to the variation in fineness, but the value was not uniform.<sup>3</sup>

Absolutely, the amount of gold coined by these companies was large, but they handled a smaller percentage of the output than Bechtler did of the North Carolina production. It was estimated in June, 1852, that there was circulating in the form of gold dust or California private coin \$20 for each of the 212,000 population, or

<sup>1</sup> They were: Baldwin and Co.; Cincinnati Mining and Trading Co.; Augustus Humbert; Kellogg and Co.; Massachusetts and California Mining Co.; Miner's Bank (Wright and Haight); Moffat and Co.; Norris, Grieg, and Norris; Pacific Mining Co.; Templeton Reid; Wams, Molitor and Co.; Duboscq and Co.; Shults and Co. — all of San Francisco, and J. S. Ormsby, of Sacramento. Catalogue of Coins, etc., 110-114 and Bankers' Magazine, 6 (1851-52): 181, 182.

<sup>2</sup> Size in sixteenths of an inch diameter.

<sup>3</sup> This lack of uniformity is evidenced by the following mint test:

Coin	Values						
\$10	\$9.37,	\$9.75,	\$7.86,	\$9.70,	and	\$9.977	
5	4.83,	4.89,	4.48,	4.93,	4.95,	and	4.955

The \$9.977 gold coin of \$10 was issued by Moffat and Co. An earlier test, made in 1849, at the New Orleans Mint, showed practically the same results. Commenting on that test, the assayer said: "As . . . these coins appear to be made of California gold, unchanged, except in melting, and being cast into ingots, we may expect the title to vary as much as that of the gold in different localities, the range of which is from 860 to 910 millimes. Hence no surprise should exist at a difference of title rendered in the same mint, or of the titles as compared with those of other mints." Hunt, 22 (1850), 226, 227.

a total of \$4,240,000.<sup>1</sup> For the whole period ending January 1, 1854, it was estimated that \$260,000,000 in gold had been produced. "More than \$60,000,000 have been coined in this city [San Francisco], but a large amount of it has been recoinced at the United States Mints. The only private coining establishment now in operation here is that of Kellogg and Richter, which is doing a very heavy business."<sup>2</sup> The California coins bear the dates: 1849 to 1853 — the greater number in 1849 and 1850.

An interesting feature of the coinage is the gold half- and quarter-dollars bearing dates ranging from 1852 to 1880.<sup>3</sup> It is thought by some that these small pieces were intended for souvenirs rather than for circulation. The extended period of their issue, long after an abundant supply of small change was available, seems to support this view. It is true, however, that because at first \$50 was the lowest value ingot stamped at the United States assay office in San Francisco, there came to be a shortage of small denomination money. Mexican dollars sold at a premium in December, 1851, of from 1 to 2 per cent, and the banking houses charged at the same time a 2 per cent premium for small gold pieces of American coinage.<sup>4</sup> This need may have been supplied in part by these small coins. The Director of the Mint in 1871 said "no doubt these coins have been imposed upon ignorant persons as real money."<sup>5</sup> Their use was probably very limited.

The United States government responded to the demand for better coinage facilities in 1851 by contracting with Moffat and Company of San Francisco, for the assay and coinage of pieces or "slugs." The smallest

<sup>1</sup> Hunt's, 27 (1852): 474.

<sup>4</sup> Hunt's, 25 (1851): 743.

<sup>2</sup> Ibid., 33 (1855): 353.

<sup>5</sup> Finance Report, 1871, 432.

<sup>3</sup> Catalogue of Coins, etc., 114, 115.

denomination was to be \$50, and \$100 and \$200 pieces were to be issued with the same stamp. They were by law coins of the United States and full legal tender. Ingots over \$200 in value might be stamped, but they were to be in the form of bars.<sup>1</sup> This assay coinage did not help the currency situation much, because the issue was limited to pieces of \$50 and over. In the early part of 1852 the contract was transferred to Curtis, Perry, and Ward, and they were authorized to issue \$10 ingots.<sup>2</sup> The need was for a mint to turn out the regular denomination gold coins, and the inconvenience and confusion caused by the government's tardiness in establishing such a mint is indicated by the following extract from the *Alla California*, of San Francisco, 1851:<sup>3</sup>

The present difficulties in the way of trade, consequent upon the issue of irresponsible coin, results naturally from the failure of congress to provide us with a mint; in the absence of which these spurious imitations have flooded the channels of trade, until they have become water-logged, have sunk, and are now like snags, knocking out the bottom of commerce, and business generally. The bankers, who especially aided in getting this coin in circulation, by which they, of course, made pretty fair percentage, have determined to decry it, and thus make another good percentage, by purchasing it when the panic shall have depressed it below its real value. The merchants also have repudiated it. This movement of theirs would have been much better had they taken it long ago.

In the same connection, *Hunt's Merchants' Magazine* says: "The want of a mint has cost the miners \$18,000,000, which has been the profit of speculators (sic), through the neglect of the government to provide a mint accessible to all."<sup>4</sup> This failure was remedied by the passing of an act, July, 1852, to establish a mint at San Francisco. The mint was not ready for operation until early in 1854.<sup>5</sup>

<sup>1</sup> Hunt's, 24 (1851): 743, 744.

<sup>2</sup> Bankers' Magazine, 6 (1851-52): 1006.

<sup>3</sup> Bankers' Magazine, 8 (1854): 789.

<sup>4</sup> Hunt's, 25 (1851): 236.

<sup>5</sup> Ibid., 24 (1851): 462.

*Miscellaneous.* — In 1842 the Orange Exchange Company, Oregon City, Oregon, put out some \$10 and \$5 gold pieces, sizes 17 and 14, and by weight 262 and 129.5 grains respectively.<sup>1</sup> At one test the bullion value of a \$5 specimen proved to be \$4.82.<sup>2</sup> A rather interesting private issue was the so-called "Coinage of the Mormons," struck in Utah in 1849 and 1860. The denominations coined were \$20, \$10, \$5, and \$2.50. The design of a \$20 piece of 1849 is typical. On the obverse it bore the legend, HOLINESS TO THE LORD, and on the reverse the letters, G. S. L. C. P. G.<sup>3</sup> The \$10 pieces ranged in value from \$8.50 to \$8.70.<sup>4</sup> One test of \$20 pieces gave an average value of \$17.225. "If this assay at the mint be a fair test of the value of the whole of the Great Salt Lake manufacture of coin — the Mormons seem to know what they are about, and to be determined to make the best of their gold mines."<sup>5</sup> In 1860 and 1861 there were three concerns coining gold in Colorado, in denominations of \$10, \$5, and \$2.50.<sup>6</sup> This coinage was issued in considerable quantities and was current in the Far West. It was of a pale color, more highly alloyed by the natural silver in it than the United States gold coins, but this deficiency was made up in part by the increased weight.<sup>7</sup> In value the \$10 issues of Clark, Gruber and Company, counting the silver in them, varied from a few cents above to a few cents below \$10. Other issues did not test out so well.<sup>8</sup>

<sup>1</sup> Catalogue of Coins, etc., 115.

<sup>2</sup> Snowden, Mint Manual, 125.

<sup>3</sup> Catalogue of Coins, etc., 117. The letters stand for Great Salt Lake City Pure Gold.

<sup>4</sup> Snowden, Mint Manual, 128.

<sup>5</sup> Bankers' Magazine, 4 (1849-50): 660.

<sup>6</sup> Clark, Gruber and Co. and J. J. Conway, of Denver, and John Parson and Co., Tarryall Mines. Catalogue of Coins, etc., 116, 117.

Coin	Weight in grains	Coin	Weight in grains
\$20	568.0	\$5	120.8 to 138.8
10	260 to 275.7	2.50	68.5 to 74.0

Catalogue of Coins, etc., 116-117.

The corresponding United States gold coins weighed 516, 258, 129, and 64.5 grains.

<sup>8</sup> Hunt's, 48 (1863): 388.



The desire for this coinage ceased with the establishment of the United States Mint at Denver, September, 1863. A peculiar gold coin in half-dollar denomination was issued in 1871 at Leavenworth, Kansas. On the reverse it bore the inscription, *HALF DOLLAR CAL.*, probably in imitation of the bona fide California coin of the same denomination. The weight of one specimen tested was 7.6 grains, 520/1000 fine, value 17 cents. The case was taken up by the authorities of the district under the act passed June 8, 1864, — the first act passed to prohibit the issue of gold coins by individuals, regardless of any intention to imitate the coins of the United States.<sup>1</sup>

This private coinage of gold, carried on at different periods in seven states and territories, constitutes an anomalous chapter in the history of our coinage.<sup>2</sup> In 1851 fifteen private mints were represented in the twenty-seven different kinds of gold coins assayed at the Philadelphia Mint.<sup>3</sup> Ten years earlier the Director of the Mint had expressed surprise that "the privilege of coining copper should be carefully confined by law to the general government; while that of coinage gold and silver, tho withheld from the states, is freely permitted to individuals, with the single restriction that they must not imitate the coinage established by law."<sup>4</sup> Naturally the people patronized these private establishments, since in 1849 and early 1850 the minimum period between depositing the bullion and receiving the coin at the government mint in Philadelphia was sixty days. Bullion deposited prior to December, 1849, was paid out in coin the middle of the following February. This

<sup>1</sup> Finance Report, 1871, 432.

<sup>2</sup> "The issue of such coins is not illegal, and under existing circumstances may be salutary, or even dictated by necessity."

Quoted from, *New Varieties of Gold and Silver Coins, Counterfeit Coins, and Bullion: With Mint Values*, by Jacob R. Eckfeldt and William E. Dubois, in *Bankers' Magazine*, 5(1850-51): 200.

<sup>3</sup> Outerbridge, 9.

<sup>4</sup> Quoted in Hunt's, 4 (1841): 383.

situation had been materially bettered, however, before the end of 1851, and the usual time elapsing between the deposit of bullion and the beginning of the payment of the coins had been reduced to forty-eight hours.<sup>1</sup>

#### IV. TOKENS ISSUED SINCE 1861

During the year 1860 the bullion value of two half-dollars ranged from 96.65 to 98.43 cents in gold; so when the depreciation of paper passed beyond 3 per cent, there was a tendency for silver to disappear from circulation. The disturbances attendant upon the Civil War period soon brought about a depreciation of paper which exceeded 3 per cent. The scarcity of small change in the early period of the war is pictured in the following quotation from the *Bankers' Magazine* for July, 1862:

"The *North American* says: 'At an early hour in the morning there was not less than a hundred and fifty boys and men, and thirty-one young ladies and girls, awaiting a supply of pennies. The boys and men carried shot bags, cigar-boxes, baskets, and all sorts of contrivances in which to carry off the much-needed coin. The girls principally carried neat baskets. When the distribution came to be made, the girls were first served, to the intense chagrin of the men, who had been standing on a single foot, alternately, upon the sidewalk, for two or three hours.'"<sup>2</sup>

By September, 1862 fractional silver coins commanded a premium of from 10 to 16 per cent.<sup>3</sup>

*Civil War Tokens.* — The tokens issued during this period fall into the two groups — tradesmen's tokens and general tokens. The issues began in the latter part of 1862, reached their maximum in 1863, and dwindled away in 1864. The *Coin Collector's Journal* for 1876 mentions about 5000 varieties of one-cent tokens, both

<sup>1</sup> Hunt's, 26 (1852): 234.

<sup>2</sup> Hunt's, 47 (1862): 301.

<sup>3</sup> *Bankers' Magazine*, 17 (1862): 390.

tradesmen's and general. For the most part they were of the same diameter and thickness, about the size of the small cent then in use; in appearance they were similar to the old copper cent. Most of them were copper alloyed.<sup>1</sup>

From the various collections described, possibly with some duplication, there are records of approximately 4500 varieties of tradesmen's tokens alone. In one rather large collection<sup>2</sup> the distribution by states is: Ohio 1358, New York 914, Michigan 511, Wisconsin 385, Indiana 270, Illinois 160, Pennsylvania 156, and Rhode Island 130. The total for the New England states, exclusive of Rhode Island, is 22. The distribution by cities is also suggestive. The western cities were especially productive. Cleveland led the list in one collection with 888 varieties. In still another collection New York City gave over 100 types,<sup>3</sup> and Cincinnati is represented in still a different collection by 61 varieties.<sup>4</sup> Other cities represented with the number of issues are: Philadelphia 8, Chicago 5, Brooklyn 5, Albany 3, Newark 3, Boston 2, and Jersey City 2. As absolute figures, these records indicate very little, but relatively they may be taken to indicate in a general way the diversity of the issue and the concentration points. Two things militated against representative collections. In the first place, the collector was almost sure to make the bulk of his collection consist of varieties issued near the place where the collection was made, because by their nature the radius of circulation for these tokens was narrowly limited. In the second place, firms in small towns and small firms in cities were almost sure to be

<sup>1</sup> Falkner, P.S.Q., 16 (1901): 324.

<sup>2</sup> Coin Collector's Journal, 1876, 12.

<sup>3</sup> The Chase Collection, American Philosophical Society of Philadelphia, Proceedings, 9 (1863): 242-258.

<sup>4</sup> Esekial, H. E., in the Numismatist, 1912, 218.

left out, because the smaller the issue the closer home they stayed.

Frequently these tradesmen's tokens bore the emblem of an Indian head; and sometimes "Liberty and Union" or "Union forever" was used. One miller of Albany combined patriotism and business by putting on his coins, "Union Flour." In addition to the name and address of the issuer it was customary to use some advertising phrase, as "Use Miller's 50 cents N. Y. Hair Dye." It has been contended, but without much probability, that the appearance of the names of the issuing firms indicated intention to redeem. The more plausible explanation, and the one supported by the history of tradesmen's tokens issued at previous periods, is that the merchant or firm supplied these tokens largely to its own customers, and the presence of the name of the issuer, in addition to the advertising value, indicated not an intention to redeem in lawful money, but rather an implied promise to receive in trade for goods. This interpretation is supported by the fact that a few of the tokens carried, in addition to the name of the issuer, a specific promise to redeem. Sometimes redemption in bills was promised,<sup>1</sup> but more often the character of the redemption was not specified.<sup>2</sup>

The Civil War card money of Cincinnati was a type of tradesmen's tokens suggestive of the paper tokens issued during the War or 1812 period.<sup>3</sup> These card money tokens were merely promises-to-pay in the form of paper tickets with their value stated on them, and their use was probably confined largely to dealings with the firm issuing them. Their claim to classification as

<sup>1</sup> An example of specific promise of redemption is: obverse, OLIVER BOUTWELL, MILLER, TROY, N. Y.; reverse, REDEEMED IN BILLS AT MY OFFICE. Chase collection.

<sup>2</sup> Falkner, P.S.Q., 16: 325.

<sup>3</sup> Eschiel, Numismatist, 1912, 218.

tokens comes from the fact that they were widely used to supply a deficiency of small coins and were recognized as a medium of exchange. Thirty-five firms issued general drink tickets ranging in value from one to twenty-five cents, nine firms issued bar tickets ranging from five to twenty-five cents, and one dancing academy used cards good for one dance. In all, sixty-one firms made use of this kind of money. The essential difference between these tokens and the metal ones was that the paper ones were cheaper. The circumstances of issue were the same.

Under the classification "general tokens" about 1300 varieties are described, as compared with the 4500 varieties of tradesmen's tokens.<sup>1</sup> This disparity in numbers does not indicate a similar difference in total output, because each type of general token probably represents a larger number of coins issued than would be true of the tradesmen's tokens. This observation is based on the fact that tradesmen's tokens were issued by a single firm, and the number so issued was limited by the amount that a merchant could put out in the course of his trade. The general tokens, on the other

<sup>1</sup> Record is preserved of one Confederate cent token. On the obverse it bore, CONFEDERATE STATES OF AMERICA; reverse, 1/CENT. *Slse* 12. *Catalogue of Coins*, etc., 122.

Paper tokens were also used similar to those issued during the War of 1812 period. The form taken was usually somewhat after the following example:

Richmond, Va.	{ Necessity is the mother of invention. }	Sept. 10, 1861.
5 cts.		5 cts.

SOUTHERN EXCHANGE OFFICE  
Basin Bank, Richmond, Va.  
I promise to pay at my office  
FIVE CENTS

Receivable for payment for flour, baled hay, oats, wood, etc., or in exchange for bankable funds, at my office, when presented in sums of five dollars.

This given under my hand and seal.

S. P. COCKER.

No. 9, 774.

Bankers' Magazine, 16 (1862): 823.

hand, were issued by firms which made token-issuing a part of their business, and their output was limited not by the trade of any one concern but by the needs of all the public.

As in previous periods, these general tokens serve as commentaries on the thought and temper of the times. The far greater number bore such patriotic legends as; "Stand by the flag," "Army and Navy," "Union forever," "The Federal Union, it must and shall be preserved." One is particularly militaristic: obverse, THE FLAG OF OUR UNION; reverse, IF ANYBODY ATTEMPTS TO TEAR IT DOWN, SHOOT HIM ON THE SPOT. Even in that day there were pacifists, for we find on one coin, HORRORS OF WAR, BLESSINGS OF PEACE, 1863. An echo of the graft and scandal connected with government war supply contracts is found in the legend on some coins, "Millions for contractors." Frequently connected with this protest is the embryo of a propaganda for pensions in the phrase, "Not one cent for the widows."

A detailed study has been made of the tokens which circulated in Cincinnati.<sup>1</sup> The issue of 134 firms with a total of 359 varieties distributed as to date show:

28 firms	.....	1862
112 "	.....	1863
67 "	.....	1864
16 "	.....	no date

Sixteen varieties issued by W. K. Lamphear was the greatest number issued by any one firm. All of the tokens were of the size of the United States bronze cent, and with one exception were coined in Cincinnati. This study, admittedly incomplete, is indicative of the wide prevalence of these general tokens during those three years of greatest stringency.

<sup>1</sup> Eschiel, *Numismatist*, 1912, 110-121

The material out of which these Civil War tokens were made is indicated by an examination of the Chase collection deposited with the American Philosophical Society of Philadelphia.<sup>1</sup> Of the 303 different issues represented, 286 were copper, 17 brass, and 4 lead (some issues were represented in more than one metal). The size of these tokens ranges from 12 to 16, size 12 predominating. A test made at the United States Mint showed an average weight of 51 grains,<sup>2</sup> and a bullion value (computed at 32 cents per pound for copper, the average price at the time of their issue) of 25/100 of a cent. The money value was usually indicated by some such phrase as: "Good for one cent," "Not one cent," "I-O-U one cent," etc.<sup>3</sup>

With a bullion value less than one-fourth of the nominal value, the question naturally arises as to the profits of the issuers. They were not as great as the above figures might suggest. One Philadelphia merchant stated that in addition to the expense of making the die, the manufacture of the coins cost him seventy-five cents per hundred.<sup>4</sup> He used a composition resembling that in the nickel cent of 1857. Where a cheaper metal was used, the profit was greater. In small scale operations the cost of the die would eat up practically all the profits. The profit worth mentioning was made by firms which manufactured general tokens and sold them to retail dealers. The issue of one of these concerns is indicated by the legends found on one type: obverse, CHARLES LANG 1863; reverse, DIE SINKER AND GEN'L ENGRAVER, WORCESTER, MASS., L. Ruloff, or Roloff, was another wholesale producer of general

<sup>1</sup> Amer. Phil. Soc. of Phila., 9 (1863): 242-258.

<sup>2</sup> The U. S. cent weighed 72 grains (88 per cent copper and 12 per cent nickel).

<sup>3</sup> Amer. Phil. Soc. of Phila., 9: 244-258.

<sup>4</sup> Falkner, P.S.Q., 16: 327.



tokens. Out of the 303 varieties of the Chase collection, 16 were issued by him.

To meet the difficulty, the Director of the Mint in his report for the year ending June 30, 1862, recommended changing the dimes and half-dimes to three-fourths their weight at that time.<sup>1</sup> This measure would have been effective so long as the depreciation of the paper money did not exceed about 30 per cent. In 1862 the New York legislature attempted to solve the problem by passing a law prohibiting the issue of tokens.<sup>2</sup> How ineffective the law was is indicated by the large number of issues recorded from that state. The United States government took up the matter, and July 14, 1862, Secretary Chase wrote a letter to Thaddeus Stevens, Chairman of the Ways and Means Committee, in which he took cognizance of the disappearance of the small coins from circulation. He suggested lightening the weight of the smaller coins, and in the same connection suggested the prohibition of token coinage.<sup>3</sup> The response to this letter was the enactment of the law of July 17, 1862, providing for the distribution of postage stamps to be used for money. The law also prohibited the issue of tokens, and imposed as a penalty a fine of not exceeding \$500, or imprisonment for not over six months, or both.<sup>4</sup> Circulars were sent out from the United States district attorneys' offices announcing

<sup>1</sup> At that time they were approximately 16/17 full weight. For the recommendation, see Hunt's, 48 (1863): 387, 388.

<sup>2</sup> *Ibid.*, 47 (1862): 155.

<sup>3</sup> *Congressional Globe*, 37 Congress, 2d Session, 1861-62, p. 3405.

<sup>4</sup> "Sec. 2. *And be it further enacted*, That from and after the first day of August, eighteen hundred and sixty-two, no private corporation, banking association, firm, or individual shall make, issue, circulate, or pay any note, check, memorandum, token, or other obligation, for a less sum than one dollar, intended to circulate as money or to be received or used in lieu of lawful money of the United States. . . ." U. S. Stats. at Large, 12: 592.

The law of May 8, 1792 dealt only with copper, whereas this law covered all private issues under one dollar.

that prompt prosecution would follow the violation of the law.<sup>1</sup>

The postage stamps "afforded a miserable shift," and by November, 1862, there was a demand for some substitute for them.<sup>2</sup> To take their place the small notes authorized with the greenback issues were put out. In spite of strenuous efforts, it was found impossible at first to supply the demand for fractional money.<sup>3</sup> A year later the Secretary of the Treasury announced that the issue of fractional notes had been on a scale large enough to assure decided economic advantages, and indicated a satisfactory solution of the whole difficulty.<sup>4</sup>

Regardless of the success of such measures, it must be remembered that the issue of tokens did not cease with the passage of the law making their coinage illegal. The law was passed July, 1862, and the greatest issue of tokens came in 1863. In speaking of these tokens, the Director of the Mint in his report for 1863 said: "They were in direct violation of the laws of the United States; and the prosecution of certain parties issuing them has deterred others, and will soon drive them altogether from circulation."<sup>5</sup> The Philadelphia merchant previously referred to said that he was threatened with prosecution if he continued to issue tokens, but there appear to be no records of any prosecution actually instituted.<sup>6</sup> The end of the period of token issue did not come because of the law making the tokens illegal, but rather because the need which the tokens filled had been supplied by the issuance of fractional paper money and by an increased coinage of United States nickel

<sup>1</sup> Bankers' Magazine, 17 (1862): 286.      <sup>2</sup> Hunt's, 47 (1862): 425.

<sup>3</sup> Report of Sec. of Treas., in Finance Reports, 1862, 28, 29.

<sup>4</sup> Ibid., 1863, 25.

<sup>5</sup> Finance Report, 1863, 189.

<sup>6</sup> Falkner, P.S.Q., 16: 324.

cents.<sup>1</sup> With the close of the Civil War period the token as an emergency adjunct to our currency system practically passed out of existence.<sup>2</sup> The government met the problem once left to its individual citizens, and with this change came the close of an unique and picturesque chapter in the history of our coinage.

B. W. BARNARD.

PRINCETON, N. J.

<sup>1</sup> Issue of nickel cents:

1861 .....	\$101,000	1864 .....	\$529,737.14
1862 .....	280,750	1865 .....	354,392.86
1863 .....	498,400		

Falkner, P.S.Q., 16: 322.

No satisfactory figures have been found indicating the total output of tokens during the Civil War period. One Philadelphia merchant claimed that his issue was relatively small and that he put out about 1000. It is reported that G. Lindemuller, a salcon-keeper in New York City, issued them to the value of \$10,000. From the same source the information comes that the total number issued reached 25,000,000, to a value of \$250,000.

Referred to by Falkner, P. S. Q., 16: 326, 327.

<sup>2</sup> In the panic of 1893 a few paper tokens were issued but their circulation was restricted and of brief duration.

## GASOLINE PRICES AS AFFECTED BY INTERLOCKING STOCKOWNERSHIP AND JOINT COST

### SUMMARY

I. Gasoline prices and profits, 636. — II. Dominant position of Standard companies, 638. — Interlocking stock, 639. — Price inequalities, 640. — Dissolution not effective, 641. — III. Remedies proposed, 642. — Prohibition of interlocking stockownership, 643. — Segregation of pipe lines, 645. — Publicity of statistics, 646. — Standardization of product, 647. — IV. Prices and joint cost, 648. — Methods of computing cost, 648. — Dangers from joint cost, 652. — Reasonable price, 653.

THE Federal Trade Commission's *Report on Gasoline Prices in 1915*<sup>1</sup> is one of several reports on the oil industry which have been issued by that body or are in preparation. Two Senate resolutions — one from Senator Owen (1913), the other from Senator Gore (1914) — directed investigations concerning the relative profitableness of refining the different kinds of crude oil and the results of the decree which provided for the dissolution of the Standard Oil Company in 1911. Acting partly under these resolutions and partly under the general powers conferred upon it, the Commission had published a report on pipe-line transportation in the Mid-Continent field, and was proceeding with a general investigation of the petroleum industry, when the great rise in gasoline prices which took place in 1915 led it to inquire into the reasons for the advance. In taking this step it was influenced by the large number of complaints which poured in upon it.

<sup>1</sup> Report on the Price of Gasoline in 1915, Washington, Government Printing Office, April 11, 1917.

### I. GASOLINE PRICES AND PROFITS

Roughly speaking, in the six months between July and December, 1915, the price of gasoline advanced by from seven to nine cents per gallon, an increase of from 75 to 85 per cent. At the same time, the quality of gasoline declined, the Commission's report stating that probably "the average gallon of volatile mineral oil sold under the name of gasoline had a Baumé test at least 1.5° lower in December, 1915, than it had in January of the same year" (p. 44). It is pointed out that altho improvements in gasoline motors have enabled those of recent construction to consume the less volatile mixtures put upon the market, the motors in use during the period under discussion are the ones to be considered.

The Report finds that the advance in prices is to be explained only in part on a competitive basis. In reaching this conclusion attention is not confined to cost, but "demand and supply" conditions are also considered. The discussion of the latter is interesting as being an attempt to draw semi-quantitative conclusions from statistics of production, stocks, and sales. Between 1914 and 1915 the consumption of gasoline increased about 38 per cent, and the production about 31 per cent. The difference was drawn from stocks, which were lower in the end of the year than at the beginning. The salient conclusion is that these total figures fail to explain the general advance in prices after October, or the differences in advance in different sections of the country. Reasoning from a diagram the Report (p. 57) concludes that "on the basis of competitive demand and supply, and without regard to cost, (1) the price of gasoline would have begun to advance about

June, as in that month stocks were decreasing rapidly while sales were increasing; (2) the price would have continued to advance until the early part of October, for the reason that up to that time decreasing stocks, increasing sales, and stationary production were the rule; and (3) a decline would have followed in December as a result of rapidly decreasing sales, increasing stocks, and a refinery output that was maintained at a maximum." Yet as a matter of fact prices rose sharply from October through December. Further, it is shown that the low price areas in 1915 (Middle West and Pacific Coast) were not generally those of low demand; and also that prices rose in all parts of the country, altho in some territories stocks increased and sales decreased, and in others the reverse was the case.

The Report goes on to state that, since demand and supply cannot be measured with sufficient accuracy to enable the determination of a reasonable market price, resort must be had to a basis of cost. In any event, competitive demand and supply are supposed to work out ultimately a price having a reasonable relation to cost.<sup>1</sup> Moreover a group of companies which has a position of dominance in an industry should act with especial care and moderation with regard to the extent to which it takes advantage of a period of scarcity to raise prices unduly above cost.

Costs are computed in the Report for representative refineries in three ways: (1) average specific cost per gallon of gasoline, (2) by-products method cost per gallon of gasoline, and (3) cost of all products per gallon of crude oil. On all bases, the computations indicate considerably increased margins of profit to the refiners. The margins per gallon of gasoline were generally from one to three cents per gallon greater in December, 1915

<sup>1</sup> Of course, demand and supply may fix prices much above cost during short periods.

than in July. Nine out of the ten refineries covered by the cost figures showed good margins per gallon of crude oil and increases therein during the year (p. 97). Clearly, the increase in prices was greater than was necessitated by increased cost.

This fact is reflected in the large net earnings made by refineries in 1915. One of the most interesting features of the Report is the light it throws on earnings of Standard companies, some of which have never published income accounts. Of the eleven Standard companies covered, all made over 10 per cent on their net investments, and seven made over 20 per cent. The Standard of Indiana earned 36 per cent on its net investment; the Standard of Nebraska, over 37 per cent; the Continental Oil Company (Rocky Mountain territory), 34 per cent. The relatively high and steady returns received by the three Standard companies doing a purely marketing business is notable (p. 109).

As is often the case with those whose business is under fire, the refining companies argued that prices were high because of increased cost of materials. While the advance in crude oil, however, was important, the costs of other materials were so insignificant in amount that such advances as occurred did not have much effect. Acid cost, for example, was about 4/100 cent and caustic soda about 4/1000 cent, per gallon of gasoline.

## II. DOMINANT POSITION OF STANDARD COMPANIES

The gasoline report shows that in 1915 the Standard companies, as classed therein, held over 75 per cent of the stocks of gasoline and made about 65 per cent of the sales of that commodity in the United States. The same companies had about 83 per cent of the exports. Standard producers and pipe lines controlled 70 per



cent of the crude oil stocks toward the end of 1915. It is suggestive of the efficient marketing organization of the Standard group that its members controlled more crude than they owned and sold more gasoline than they produced.

The Commission announces that it has found no direct evidence of collusion among Standard companies. This is not to be taken as final, however, for its investigation has not been completed. The Report points to such indirect evidence as the continued lack of competition among the Standard companies, the maintenance of a division of territory among them, and the existence of a strong community of interest based on interlocking stockholding.

The extent of stockholding in common is indicated to equal about 70 per cent in various producing, pipeline, refining, tank-car, and marketing concerns. Over 50 per cent of the stock of these concerns was held in the names of some twenty-nine persons, such as Rockefeller, Harkness, Pratt, Flagler, Bostwick, Whitney, Archbold, and others well known. Moreover, the officers and directors of the various Standard companies are often large stockholders in potentially competitive Standard concerns. "Thus the president of the Standard of New Jersey, who in 1915 held 6000 shares (\$3,258,000) in his own company, also owned 4575 shares (\$1,029,375) in the Standard of New York, 300 shares (\$207,000) in the Atlantic Refining Company, and 1858 shares (\$1,012,610) in the Standard of Indiana, and 1100 shares (\$480,150) in the Prairie Oil and Gas Company" (p. 145). Altho there appear to have been no interlocking directors, the foregoing condition is enough to create an effective barrier against competition.

Accordingly, one is not surprised to find that the country is divided into eleven distinct marketing terri-

territories,<sup>1</sup> following state lines, and that there is substantially no competition among these territories. It appears that widely different prices obtain among them. When one steps across an imaginary boundary into another "territory," one pays two cents more per gallon for gasoline. One of the most important points made in the Report is that considerable inequalities in price existed, which *corresponded exactly to nothing except arbitrarily maintained Standard marketing territories*. Differences of over eight cents per gallon at times obtained between some of the territories. At first glance these differences might seem to indicate an independent price policy and absence of concerted action. Further consideration, however, indicates that such inequalities could not have existed had there been no artificial division of territory, and, more than that, they could not have existed without the practice of more or less arbitrary price-making by companies having a considerable degree of control within the several "territories" and refraining from competition with one another.

As to degree of control within the several territories, the Report estimates that in nine of the eleven territories the particular Standard company doing business marketed over 50 per cent of the gasoline in 1915, and in one other territory (Pacific Coast) the Standard's 48 per cent gave it a substantially dominant position. It is indicated that in New England, New York, Pennsylvania, Delaware, and Ohio, Standard companies had about 70 per cent of the business. Accordingly the Standard market is generally followed by the so-called independents, including, by their own admission, such large companies as The Texas Company, and the Gulf

<sup>1</sup> One small exception exists in Arkansas; in this state the Standard of Louisiana (owned by the Standard of New Jersey) and the Magnolia Petroleum Company (70 per cent of whose stock was owned by officers in the Standard of New Jersey and the Standard of New York) both did business.

Refining Company. Moreover, some indication of a variation of profits among Standard companies according to degree of control is to be seen, tho the information available is not full enough to make this certain. If the December "net backs" to the refineries (i. e., wholesale price minus freight and marketing cost) are taken as indicative of the extent to which the companies took advantage of the situation, there appears a rough correspondence of the amount of advantage taken with degree of control, the net back being highest in the case of the Standard of New York and lowest in the case of the Magnolia Petroleum Company. The diagrams showing the course of prices at representative points indicate also that prices were advanced earliest in those territories in which there was the greater control.<sup>1</sup>

Most of these general statements are subject to some exceptions. Thus in the territory of the Standard of Indiana, where the Standard company had 60 per cent of the gasoline business, the price was not advanced until nearly the middle of September. The situation in this territory, however, is peculiar in that it is here that the Standard company has met its most persistent competition. During the summer of 1915 it maintained a very low price, apparently for the purpose of gaining on its competitors; and it went so far that it not only seriously threatened their existence, but it actually sold below its own current cost of production for a time in the area occupied by its most active competitors. This is the most serious particular charge against Standard companies which can be based upon the Report.

No uncertainty can remain in the mind of the reader of the Report as to the effectiveness of the dissolution decree of 1911. While the decree is not attacked, but

<sup>1</sup> Some significance may also be attached to the fact that the two lowest percentages of net earnings shown were made by companies which were among the three having the lowest percentage of control. For the other of the three, the net earnings are not shown.

is regarded as an experiment — perhaps worth while trying at the time it was handed down — the chapter on "Position of the Standard Companies in the Industry" concludes with the words, "it is the Commission's judgment that in the oil industry the experiment of dissolving corporations without separating owners has not achieved the purpose of establishing effective competition." Combination was not destroyed; it remained, in the shape of a community of interest; and the territories as established have been carefully maintained. This last fact would appear to have special significance, inasmuch as the Supreme Court mentioned as one evidence of intent to monopolize, "the system of marketing which was adopted by which the country was divided into districts and the trade in each district in oil was turned over to a designated corporation within the combination and all others were excluded."<sup>1</sup> The recommendations made in the Report show that the Commission believes that the decree requires modification, the suggestion being made at one point "to enact into law the doctrine as to diverse ownership of competing corporations which has been laid down by the courts in the Union Pacific, Reading and other recent cases" (p. 164).

### III. REMEDIES PROPOSED

For remedying the conditions disclosed, four measures or groups of measures are proposed: (1) limitations on interlocking stockownership, (2) segregation of pipe lines, (3) publicity of statistics, (4) a degree of standardization of product. It will be observed that the first two proposals look toward the increase of competition by removing the barriers which community of

<sup>1</sup> 221 U. S. 77.

interest raises against the operation of that force; the second two are primarily calculated to make more effective the competition which now exists or may hereafter be established.

All through the Report runs the idea that the absence of effective competition among Standard companies is due to community of interest based on interlocking stockownership. Five possible courses of action are suggested to remedy this condition, some of these being alternatives. (a) It is suggested that on the basis of the facts disclosed in the Report, the Attorney-General may deem advisable some further action under existing law. In view, however, of the care taken by the several Standard companies to comply with the letter of the dissolution decree and the lack of any direct evidence of collusion among them, this step does not appear probable. More promising are the various proposals for new legislation. (b) It is suggested that the Federal Trade Commission Act be amended so that when there has been a technical compliance with a decree of dissolution, but the desired results have failed to arise, it shall be the duty of the Attorney-General to file a bill of review with the court entering the decree. The court will then be compelled to reopen the case, and the findings of the Commission concerning competition and the like will be final evidence as to fact. A modified decree may be the result. Such a measure would appear to be constitutional and would provide a reasonable elasticity in regulation, according to changing industrial conditions. It would, however, work but slowly and might not be sufficiently drastic in some cases. (c) Perhaps the most drastic of the proposals adopted by the Commission is the prohibition of interlocking stockownership in the case of industrial corporations which have been dissolved under the Sherman anti-trust law. The former

constituents of the Standard Oil combination would be reached and stockholders therein would be compelled to dispose of stock in all but one of such constituents. One possible objection to this proposal lies in its narrow application, since some dissolved corporations among which there is stock held in common may be in no need of further attack, while, on the other hand, in many cases competition among corporations which have not been dissolved may be more or less restricted by the same means. Another possible objection is that so disturbing an operation as compelling the sale of stock may not be necessary and that the end may be achieved in another way with less harmful results.

Accordingly, to meet these possible objections, a more general measure is proposed but one capable of being used less drastically, namely (*d*) to withdraw from all owners of stock in any two or more potentially competitive corporations the right to vote or hold office or otherwise exercise power of control in more than one of such corporations. This provision might be subject to evasion, but properly placed penalties might enforce it. If enforced, it would immediately prevent those who hold stock in two or more companies from becoming officers or directors in those companies, and from voting their stock. This would minimize the operation of community of interest. It would ultimately lead to a large reduction in interlocking stockholding by inducing sale.

To prevent interlocking stockownership is the fundamental remedy for a large part of the restriction of competition in the oil industry. If, however, this remedy is not adopted, the Report suggests as a last recourse, (*e*) taking the bull by the horns and treating the companies as one. Recognizing the fact of common ownership, it might be possible to hold the common owners liable for

those unfair acts which result from their common interest. Thus, if price discriminations occurred between the "territories" of different companies, they would be dealt with as discrimination practised by a single company. There can be little doubt that one result of the dissolution decree has been that great inequalities in price can exist among the different territories of companies owned by the same individuals without subjecting the common owners to suit under Federal anti-discrimination law. The Standard of Indiana, for example, can maintain prices at a ruinously low level while the Standard companies in Ohio, Kentucky, Nebraska, and Montana get high prices.

Of course, the great danger of the last proposal lies in its recognition of unity among the companies. It might operate to bring them closer together in their price policies and thus lead to price regulation. Something like this must come, however, if competition fails.

A distinct phase of interlocking ownership is that which involves the relation among the different stages in the industry. In this respect the Report contains a recommendation that the ownership of pipe lines be segregated from ownership in the other branches of the petroleum industry. The recommendation is in accord with the general recognition of the strategic position held by transportation agencies of the common carrier type, and is in line with the "commodities clause" legislation. The Commission's investigation has clearly shown that the control over pipe lines has been one of the great advantages of Standard companies and that these transportation agencies have not been available to their competitors on the basis of reasonable rates and conditions of service. In the Pennsylvania region a group of small independent refiners has been stunted through dependence upon a limited supply of crude oil furnished to them through Standard pipe lines.



Perhaps the chief objection to the segregation of pipe lines lies in the difficulty of financing to which this policy would give rise. Pipe lines have generally been constructed by refining interests, and chiefly to meet their own requirements for raw material. The investment has been virtually a part of the refining company's investment. There is a considerable element of risk in constructing a pipe line, since the quantity of oil in a given pool is uncertain; but oil must be delivered to the refinery and consequently the investment must be made. If the pipe line were put strictly on its own basis, it is argued that no one could be found willing to make an investment so uncertain. On the other hand, it is to be pointed out that oil production is becoming more scientific and oil resources better known, thus reducing risk. Moreover, if refineries must have pipe lines they will pay for the services of these agencies what may be necessary to attract capital to them. It is doubtful if in the long run this payment would be any greater than the cost under present conditions; but if it were, would the equality of conditions secured not be worth the increase, from a public point of view?

The two proposals looking toward a more perfect working of existing competition concern correct information and standardized product. The argument in the Report for publicity of correct statistics is of considerable interest to the economist. The forces of demand and supply are supposed, under competition, to establish a price which will tend to clear the market and which will tend to fix a normal price at cost plus normal profit. This supposition, however, is based on the further assumption that competitors, both buyers and sellers, are informed at least as to the facts of supply. If ignorance prevails concerning production and stocks — to say nothing of demand conditions — buyers and

sellers work in the dark, and there is nothing to insure a balance of demand and supply. It is doubtful, under such circumstances, if any appreciable tendency toward the most desirable equilibrium exists, and certainly such a tendency may be so delayed in operation as to lack practical significance. The door is also kept open for manipulation. In almost every investigation undertaken by the Federal Trade Commission it has appeared that such price irregularities or excesses as have occurred have been materially facilitated by ignorance of the true condition of "the market," with the attendant uncertainty or even panic. This has been true of other articles, such as news-print paper and of coal. It was true of gasoline. One jobber is quoted in the Report as follows: "I suppose it cost me \$50,000 last year (1915) for lack of knowledge. If we had had any way to know the true conditions, we could have protected ourselves in the market." In short, we cannot count upon a close adjustment between demand and supply when demand and supply conditions are not known. Economists should stress this more in their theories of value, and statesmen should consider it in passing laws for the purpose of correcting unreasonable prices.

As to standardization, it is clear that when no man knows what he is buying no man can buy intelligently, and competition must do its work blindfolded. Gasoline as sold in 1915 is shown in the Report to have ranged from 57° to 65° Baumé test. More than this, it had ceased to be a homogeneous product and in its name were sold blends of heavy naphtha or "cracked" residual products combined with more volatile elements. The Report recommends that Congress define what shall be sold in interstate commerce as "gasoline." This, of course, would not prevent the sale of inferior motor fuels, but it would prevent their sale under a misleading name.

## IV. PRICES AND JOINT COST

The heart of the Report lies in its chapter on cost and margins; and to the economist this chapter is of interest because of the light it throws on the problem of "joint cost." Obviously petroleum refining involves "joint cost" to a great extent; out of a barrel of crude oil are produced such different things as gasoline and coke, lubricating oil and asphalt, not to mention kerosene and fuel oil.

As a first step in cost analysis, the computations based upon a gallon of crude oil may be noted (pp. 221 f., 95 f.). These show the actual book cost of the crude and the average cost of refining it. Then the value of all the products obtained from the gallon of crude is computed. The difference is the current operating margin per gallon of crude oil consumed. A common condition in 1915 would be that of a plant whose crude cost \$3.40 per hundred gallons; refining added ninety cents more; total cost would be \$4.30. Out of this crude as chief products came twenty-one gallons of gasoline worth \$2.00 at the refinery; thirty-five gallons kerosene worth \$1.60; twenty gallons of fuel oil worth fifty cents; and eleven gallons of lubricating oil worth \$1.70. The total value of these chief products, \$5.80, taken alone, would have given a margin of \$1.50 per hundred gallons of crude. Actual margins in 1915 ranged from losses in some months up to profit margins over \$3.00 per hundred gallons of crude refined.<sup>1</sup>

But this does not reveal anything as to the specific cost of gasoline. In attempting to segregate this cost, one's first thought is to strike a sort of average by prorating the total cost — crude plus refining — equally

<sup>1</sup> Several refining companies consumed over 800,000,000 gallons of crude in 1915.

among all gallons of products. This method would give, in the second six months of 1915, average costs ranging all the way from \$2.62 per hundred gallons of product up to \$6.39 per hundred gallons. Clearly, with fuel oil piling up at a price of \$3.00 per hundred gallons, and kerosene selling at \$4.50, over half of the quantity of products from the crude must be sold at a loss, if costs were thus figured. On the other hand, gasoline at \$13.00 per hundred gallons and lubricating oil at \$15.50 would yield an unreasonably high margin above such an average cost.

The situation is that these different products are all necessarily produced, and that they must be produced in certain rather closely fixed proportions. If the refiner, when kerosene could not be sold at the average cost, could cease to make it, or at least reduce its output largely, he would so decrease the supply as to bring about an advance in price which would bring it up to the average cost. Similarly (still supposing he could vary his products at will) he would produce more of gasoline, so that its price would tend to fall toward the average cost. If the demand for kerosene were so lacking in intensity that no one would pay the average cost, no kerosene would be made under the conditions supposed. On the other hand, if the demand for gasoline were so intense that it could all be sold for more than any other product, the refiner on the same assumption, would produce nothing but gasoline. There would be a tendency for price to conform to average cost.

But — perhaps unfortunately — under present methods over 50 per cent of the crude oil refined *must* go into kerosene and fuel oil classes of products. No effort or sacrifice can make a given crude yield over 50 per cent of gasoline and lubricating oils by commercially successful methods. Consequently the production cannot

readily be varied in proportion to changes in the market prices of the products, and prices cannot be said to have a tendency to equal average cost. In fact, cost loses a large part of its price-determining significance. When one has thousands of barrels of kerosene piling up in one's tanks, one can't wait for prices to rise to an average cost before one sells it. And this is especially true when one can sell one's gasoline for enough above average cost to cover the "loss" on kerosene. In fact, cost may become little more than a mere question of commercial expediency, and be imputed to that one of the necessarily joint products which can best bear it in the judgment of the refiner.

When one of the joint products is clearly the main product, in the sense that any others are merely incidental to its manufacture, the situation is relatively simple; for then the entire cost of the business may be properly charged to the main product and receipts from the sale of the incidental by-products<sup>1</sup> be applied toward reducing its cost. This is not a case of true economic joint cost. And this is what certainly exists in part of the oil refining industry. Some small refineries, known in the trade as "skimming plants," are run almost solely to produce gasoline, the balance of the crude content being thrown into kerosene and fuel oil

<sup>1</sup> The term "by-products" is used loosely. Obviously it has a significance which is largely if not entirely relative. It may be applied to one of several equally important products, or to some product which is incidental to a chief product and which has little or no economic importance. The "by-product" may or may not be necessarily connected with the production of the main product; and the necessity, if it exists, may lie in the physics or chemistry of the situation or in economy. What is generally a "by-product" may be so large a part of the output of some producers as to be their chief product, perhaps on account of special advantage. The writer would suggest that economists confine their use of the term to any product which is necessarily attached to the production of some main product or products, and which is so unimportant as a source of income as to be unnecessary to the existence of the industry concerned. This would make the class, "by-products," a species of the genus "joint product." Further suggestion along this line will be found in the writer's article on "Joint Costs with Especial Regard to Railways" published in this Journal, February, 1916.

which are sold for what they will bring. Even at larger and more elaborately equipped plants this condition has been approximated. Accordingly, the Report lays most stress upon what is called therein the by-products method, pointing out, however, that the costs of gasoline so computed are maximum figures and not costs at all in the strict sense of the term. On this basis gasoline costs, at various refineries, varied from about \$4.50 to \$8.65 per hundred gallons in the second half of 1915 — as compared with an *average* cost of from \$2.62 to \$6.39.

When there is no single main product, but several products exist which can be sold for more than the average cost, the situation is naturally different. This is especially true when the several main products are each and all essential to the profitable conduct of the business. Thus an eastern refinery, having to pay considerable transportation costs on its Oklahoma and Mexican crude oil, could hardly afford not to work its crude more intensively than a "skimming plant." In such a case lubricating oils, for example, may become a second main product, and consequently it would not be logical to bring them with other products as a credit to gasoline cost. This is a case of true economic joint cost, and is much more difficult to handle than the case of a single main product.

In the Report, the method pursued is to use the average cost of all products as the cost of gasoline,<sup>1</sup> when products other than gasoline show a gain rather than a loss as compared with their average cost. In other words, profits on by-products, when regularly received, are not deducted from the cost of the main product (p. 87 f.). Obviously this is but a rough way of dealing with the problem, and could not be used at all if

<sup>1</sup> The "average specific cost of gasoline" might have been used more logically, but there is little difference between the two figures.

separate costs were being worked out for both gasoline and lubricating oil, to say nothing of other products.

If an attempt were to be made to ascertain the costs of two or more main joint products, the logical procedure (as a practical matter) would appear to be to assign specific costs directly and to divide the remainder of total cost between them on the basis of gallons produced, making allowance for differences in value when these are such as to indicate truly the relative intensity of normal demands. Then receipts from other products should be deducted from the costs so ascertained in such a way as to bring them as closely as possible to average specific cost.<sup>1</sup> In this way "losses" on other products would be divided in proportion to ability to bear.

It is to be observed that the apportionment of cost among the various joint products is much affected by the relation among the prices received for such products. The low prices recently prevailing in the refined oil (kerosene) market have directly necessitated the apportionment of losses on kerosene to the cost of gasoline. Incidentally, this has tended to decrease the output of refined oil and to increase that of gasoline. As already pointed out, however, there are narrow limits within which supply adjustments can be effected; and this of course is the great reason why the cost (and price) of one joint product must depend in part upon the price of the other.

This situation introduces a "what the traffic will bear" policy into gasoline prices, a sort of taxation power being given to the seller. Kerosene will not stand much of a charge and is sold cheap, while gasoline will bear a high price and is levied upon accordingly. The danger in this absence of a definite cost basis is

<sup>1</sup> Thus those costs which were most in excess of average specific cost would be first credited with receipts from by-products, tending to reduce all gradually to the normal level.



twofold: first, that discrimination will be practised; second, that prices which are absolutely too high will be exacted. To take up the latter point first, the trouble obviously lies in the fact that no cost is known for any one of the several refinery products. When the refiner can ask "what is the cost of gasoline, kerosene, fuel oil, and lubricating oil?" and no one can answer — what is to prevent prices from going too high? Even where there is competition it must work blindly and uncertainly if no one knows the bottom price. Where little effective competition is found, as in the gasoline industry, a large margin is likely to be secured. A contributing factor has been the dense ignorance concerning the investment and earnings of the chief refining companies. The large net earnings received by most of the refiners in 1915, and known to have been received for years by Standard companies, certainly are consistent with the foregoing reasoning.

As to the discrimination — using the term in a non-legal sense — it manifests itself (1) in the wide difference in price between gasoline and kerosene, (2) in the wide differences in price between different sections of the country, (3) in the existence of "quantity discounts" and "allowances" in the same locality. These things would not have existed to the extent that they have in the gasoline business had the cost of gasoline been known and not been inextricably mixed up with that of other products.

But just as in the field of railway rates we may search for the reasonable rate, so here we may inquire what is a reasonable price for gasoline. To begin with, the return from the sale of the joint products must be such as to yield no more than a reasonable return on the investment, which of course will depend partly upon risk. This seeming truism has a direct practical bearing upon

the problem in hand, for with a total charge for all products no greater than what will yield a reasonable return on investment, the prices on the several products under competition would normally be adjusted so as to correspond as nearly as possible to the average cost (including necessary profit) per gallon of product.<sup>1</sup> Average cost is simply total fair price of all products (including reasonable profit) divided by gallons of product. If, then, kerosene could not be sold in competition for the average cost, the excess of average cost over price would justly be charged to gasoline or other high-demand product. The maximum normal price that can be justified under competition for gasoline is accordingly the average cost<sup>1</sup> plus the excesses of average cost over prices received for other products.

The idea may be expressed in another way. Having ascertained the sum which is necessary to yield a reasonable return on investment, the reasonable average margin of profit can be computed. When some of the joint products yield a margin over average cost which is less than this reasonable average margin, the deficiency is charged to those products which yield more—say in the ratio of their profitableness over a series of years—and at the same time any excess in the total margin is cut down, the reduction being adjusted among the high-profit products on a progressive basis. The result is a total margin which yields a fair return and which is fairly adjusted among the joint products.

It is indicated in the Report that the costs and prices of July, 1915, resulted in sufficient margins on gasoline to the Standard refiners. As these margins were computed according to the by-products method, which charges to the cost of gasoline the excesses of average

<sup>1</sup> However, if there were an important item of specific cost directly assignable to one product it would probably be allocated first and only the balance assigned.

cost of other products over their prices, and, as this method has the significance indicated in the preceding paragraph, it would seem that the excesses in the December margins over those of July were not justified under competitive conditions. In the cases of several companies the December excess was in the neighborhood of three cents per gallon, and one might infer from the Report that prices about three cents lower than those charged in December would have been sufficient.

LEWIS H. HANEY.

WASHINGTON, D. C.

## A STUDY OF MITCHELL'S INQUIRIES INTO PRICES<sup>1</sup>

### SUMMARY

I. Introductory. Method and purpose of this paper; Mitchell's figures subjected to more refined methods, 656. — II. Comparison of wholesale and retail prices, 658; lag of retail prices not clearly established, 659. — Producers' goods and consumers' goods; examination of annual, quarterly and monthly data, 660. — III. Raw materials, partly manufactured and finished goods move concurrently, 663. — Influence of raw materials eliminated, 664. — Dissimilar price fluctuations of producers' and consumers' goods, 665. — IV. Organic and inorganic goods; Sombart's theory tested, 666. — V. Wages in England and United States; closer relation between wages and wholesale prices in the former, 668. — VI. Summary and conclusions. Mitchell confirmed in part only, 671. — Annual figures not necessarily homogeneous; quarterly figures suggested, 673.

### I

MITCHELL'S *Business Cycles* is justly characterized by reviewers of the work as "the most complete and careful study of the phenomena connected with business cycles,"<sup>2</sup> and "by far the most elaborate treatise on the subject that has yet appeared in the English language."<sup>3</sup> Another writer remarks that "altho much still remains to be done in the field of the business cycle, the value of Professor Mitchell's contribution to our knowledge of the subject can hardly be overestimated."<sup>4</sup> Mitchell goes into the world of facts, selects data, constructs

<sup>1</sup> I am indebted to Professor W. M. Persons for suggesting this inquiry, which was carried on in connection with the graduate course on statistics conducted by him at Harvard University during the past academic year.

<sup>2</sup> Quarterly Journal of Economics, vol. xxviii, pp. 795-810 (Persons).

<sup>3</sup> Economic Journal, vol. xxiv, pp. 78-80 (Figou).

<sup>4</sup> Journal of Political Economy, vol. xxiv, pp. 600-611 (Sprague).

index numbers, plots curves. This done, he interprets the results. His deductions and interpretations are based mainly on annual data presented in graphic form. The degree of fluctuation, the correspondence or lack of correspondence of the cyclical movements, the amount of lag of the fluctuations of one series as compared with those of another, is by inspection of the simple graphs. It is this subjective method which the present paper considers and tests. No endeavor is here made to present additional data, or to revise in any way the material so admirably presented by Mitchell. The purpose is simply to introduce more objective methods of testing the validity of his conclusions.

Not every table or chart or conclusion in Mitchell's book will be examined, but only those which are closely related to the problem at hand and are not so obvious as to be generally accepted.<sup>1</sup> The price series used throughout are in the form of index numbers based upon the arithmetic average 1890-99 as 100. Unless otherwise specified the figures represent annual data. Where in any series figures are wanting, the corresponding figures in the series with which it is compared are elided in the interest of consistency.

I shall bring to the task of testing the cyclical movements of the respective price series the Pearsonian coefficient of correlation.<sup>2</sup> Considerations of accuracy as well as of ease of calculation lead me to correlate *first differences*<sup>3</sup> rather than *cycles*. Each series will ordi-

<sup>1</sup> For example, the relations which Mitchell finds existing between interest rates on bonds, commercial paper and call loans are easily discerned from the graphs and generally accepted by economists. The same might be said of other series. Cf. Mitchell, *Business Cycles*, pp. 140-56.

<sup>2</sup> For a discussion of this device and its practical application see Yule, *An Introduction to the Theory of Statistics*, chaps. 9 and 10.

<sup>3</sup> So long as the secular trend is linear the results obtained by the method of first differences have in a number of independent tests been found by Professor Warren M. Persons to be substantially the same as those obtained by the more involved but no more accurate method of cycles. For a comparison of the practical results of these two

narily be compared with another series concurrently and also for a lag in both directions. The expressions "previous," "concurrent," and "lag" in the tables which follow invariably refer to the last named of the series paired. The index of correlation is carried to two places only, since the probable inaccuracy of the original data will not justify further refinement.

For the purposes of the present inquiry it is a matter of indifference whether relative dispersion be measured by the standard deviation or by the coefficient of variation.<sup>1</sup> For convenience I shall ordinarily use the standard deviation of the first differences. In certain instances the other criterion may be introduced as a check on the results.

## II

Mitchell finds that the retail prices of thirty staple foods as compiled by the United States Bureau of Labor show a "certain correspondence" with business conditions, despite the fact that "the supply of vegetable and animal foods varies in an arbitrary fashion determined by the weather and the demand for staple foods is less affected by prosperity and depression than that of more dispensable commodities."<sup>2</sup>

methods the reader is referred to an article by Professor Persons on the "Construction of a Business Barometer" in the *American Economic Review* for December, 1916, vol. vi, pp. 739-69, especially pp. 755 ff. A recent theoretical discussion of this method by the same author appears in the *Quarterly Publications of the American Statistical Association*, vol. xvi, no. 118, June, 1917. Tho this coefficient is smaller than that of the cycles, it has the advantage of being more sensitive than the latter to variations in the series compared. Besides, for the present purpose not absolute size but the relation existing between the coefficients is the important thing.

<sup>1</sup> Cf. Yule, *An Introduction to the Theory of Statistics*, pp. 134-44, and 149. The standard deviation of first differences differs from that of the original series merely in size. Both may be equally relied upon as a measure of relative fluctuation. The justification for the employment of the standard deviation lies in the fact that the series compared are in the form of index numbers based on the arithmetic average 1890-99 as 100, which may therefore be said to be made up of comparable units. The small amount of error due to the fact that the arithmetic mean for the entire series may not be 100 may for present purposes be ignored.

<sup>2</sup> Mitchell, *Business Cycles*, p. 95.

In the comparison of consumers' goods at wholesale and at retail, satisfactory results can be obtained only by comparing series which contain the same classes of commodities. Since the currently published index numbers do not meet this test, Mitchell finds it necessary to reconstruct the two series upon the basis of figures obtained from the Bureau of Labor Bulletin. Average relative prices for twenty-five commodities<sup>1</sup> are accordingly arranged in two series — at wholesale and at retail — and two curves are plotted from these figures.<sup>2</sup> Mitchell observes that "while these two series agree closely in the general trend of fluctuations, the retail prices are much more stable. They lag behind wholesale prices both on the rise and on the fall, but more on the fall than on the rise."<sup>3</sup>

The correlation of relative prices at retail with relative prices at wholesale of twenty-five staple foods<sup>4</sup> yields the following results:

TABLE I. — TWENTY-FIVE STAPLE FOODS AT WHOLESALE AND RETAIL (1890-1907)

(The expressions "previous," "concurrent" and "lag" refer to the last named of the series paired)

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One year Lag
Retail prices and wholesale prices	+ .09	+ .72	+ .15

It is clear from this test that Mitchell's contention that the series move together is not without foundation, since there is a considerable degree of correlation between them (+ .72). But it is to be noted also that the point of highest agreement appears in the concurrent data as distinguished from a lag in either direction. The slightly higher degree of correlation for the one year lag

<sup>1</sup> Mitchell, *Business Cycles*, p. 96, note 9.

<sup>2</sup> *Ibid.*, p. 98.

<sup>3</sup> *Ibid.*, p. 97.

<sup>4</sup> *Ibid.*, Table 3, Chart 1, p. 97.



than for the previous year is not significant, since the difference is small and the coefficient low.

The greater stability in retail prices than in wholesale prices is indicated by their standard deviations, 4.2 and 6.8 respectively.

Mitchell asserts further that as between producers' and consumers' goods the same phenomenon appears. "As consumers' goods at retail are more stable in price than the same goods at wholesale, so consumers' goods even at wholesale, are more stable in price than producers' goods. . . . The availability of data by months for recent years makes it possible to carry out this comparison in detail for the period including the latest crisis, depression and revival of business activity.

"The comparison by months shows that producers' goods reached their highest point earlier in 1907 than consumers' goods, and were on the down-grade several months before the panic broke out. Their decline in 1908 was also greater in degree, their recovery began sooner and proceeded at a faster pace. In brief, within short periods as within long, the prices of producers' goods appear to be decidedly more sensitive than prices of consumers' goods to alterations in business conditions."

Let us apply our tests first to the annual data on this topic. So far as the degree of fluctuation is concerned, consumers' goods show more stability than producers' goods, since the standard deviation of the former is 4.7, while that of the latter is 5.8. But in point of time the prices of both types of goods move together. The two series correlate with each other most closely for the same year (+.74), while the correlation of consumers' goods with producers' goods for the previous year is but moderate (+.41), and the agreement for the lag of one

year is of no significance. Again, there is some tendency for the prices of producers' goods to move earlier than those of consumers' goods, but the tendency is not marked.

TABLE II. — CONSUMERS' AND PRODUCERS' GOODS AT WHOLESALE IN THE UNITED STATES (1890-1910)<sup>1</sup>

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Consumers' goods and producers' goods	+.41	+.74	+.05
Series		Standard Deviations	
Producers' goods		5.8	
Consumers' goods		4.7	

It will now be interesting to look for a moment at the monthly data, which run through the business cycle of 1907. Tho Mitchell has not charted the monthly figures I feel warranted in examining them, since he brings the monthly as well as the annual data to the support of his conclusions. I have correlated these two monthly series<sup>2</sup> with each other for concurrent months and for lags of three-month intervals in each direction with results which, tho low, may be said to be of some significance. As in the case of the annual figures, the concurrent correlation is the highest (+.36). The other coefficients are either low or negative, with the possible exception of that resulting from the correlation of the prices of consumers' goods with producers' goods for six months previous (+.27). This, if it indicates anything at all, signifies a slight tendency of the prices of producers' goods to move before those of consumers' goods. It should be observed that these coefficients do not descend gradually from the highest point in each direction as do those of the quarterly figures which appear later.

<sup>1</sup> For series correlated see Mitchell, *Business Cycles*, Table 4, p. 98.

<sup>2</sup> *Ibid.*, Table 4, p. 99.

TABLE III. — CONSUMERS' AND PRODUCERS' GOODS AT WHOLESALE IN THE UNITED STATES

(By months, January, 1907 to December, 1910, inclusive)

Series Correlated	Coefficients of Correlation
Consumers' goods and producers' goods:	
Twelve months previous	-.09
Nine months previous	+.19
Six months previous	+.27
Three months previous	+.13
Concurrent	+.36
Three months lag	-.09
Six months lag	-.10
Nine months lag	-.08

Turn now to the results for quarters. They are more in accord with Mitchell's conclusions. Inasmuch as he does not present quarterly figures, I have resolved his monthly series, 1907-1910,<sup>1</sup> into quarterly series by means of a three-month arithmetic average. This treatment of his data, however, reduces the number of items in each series to fifteen at most, and thereby impairs measurably the reliability of the respective indices of correlation. Here the highest degree of correlation is perceived when prices of consumers' goods for the current quarter are correlated with those of producers' goods for the previous quarter (+.46). The correlation for the second previous quarter (+.37) is equally as high as the concurrent correlation (+.36). The agreement with the third previous quarter (+.21) is too low to be of any significance. The least harmony occurs between consumers' goods for the current quarter and producers' goods for the second subsequent quarter -.24). It should be noted that the results diminish regularly from the maximum in each direction. What I have just presented is the strongest evidence I can find from the material at hand that the prices in question

<sup>1</sup> Business Cycles, Table 4, p. 99.

behave in the manner suggested by Mitchell. Unfortunately, the lack of sufficient data precludes any definite conclusion.

TABLE IV. — PRODUCERS' AND CONSUMERS' GOODS AT WHOLESALE IN THE UNITED STATES

(By quarters, January, 1907 to December, 1910, inclusive)

Series Correlated	Coefficients of Correlation
Consumers' goods and producers' goods:	
Four quarters previous	-.01
Three quarters previous	+.21
Two quarters previous	+.37
One quarter previous	+.46
Concurrent	+.36
One quarters lag	-.05
Two quarters lag	-.24
Three quarters lag	-.14

### III

An inquiry into the relation between the prices of finished products and of raw materials from which they are made is significant. Mitchell's comparison of the curves of the relative prices of twenty pairs of raw materials and their manufactured products<sup>1</sup> indicates "that, whether the comparison be by months or years, the prices of raw materials respond more promptly and in larger measure to changes in business conditions than do the prices of their products." And the introduction of an intermediate curve representing the prices of partly manufactured goods<sup>2</sup> leads him to the further conclusion that the degree of steadiness of the prices of goods is a function of their nearness to or remoteness from the raw state.<sup>3</sup>

The method of correlation does not in this case strengthen Mitchell's position. For if we accept his an-

<sup>1</sup> Mitchell, *Business Cycles*, Chart 2, p. 100, and Table 5, p. 101.

<sup>2</sup> *Ibid.*, Chart 3, p. 100, Table 5, p. 101.

<sup>3</sup> *Ibid.*, p. 102.

nual data as the correct basis and compare the prices of the twenty raw materials with the prices of the twenty manufactured articles, we find the prices of the two series for the same year moving very closely together ( $+.94$ ), while the prices of raw materials for the preceding year agree in a less measure ( $+.24$ ), and for the one year lag not at all ( $-.04$ ).

TABLE V.—TWENTY RAW MATERIALS AND THEIR MANUFACTURED PRODUCTS (1890-1910)

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Manufactured products and raw materials	$+.24$	$+.94$	$-.04$

The author's assertion seems also at variance with the facts revealed in the case of the "five triplets,"<sup>1</sup> the more evidence can here be invoked in his support than in the previous instance. Prices of raw materials move concurrently with prices of partly manufactured products ( $+.76$ ), which latter in turn harmonize with the prices of finished products for the same year in a slightly less degree ( $+.69$ ). And the prices of finished products agree as closely with the prices of raw materials for the concurrent as for the previous year ( $+.52$ ). Correlation for the one year lag is negative. One of the most striking features of the table which follows is the higher correlation of finished products for the current year with raw materials for the previous year ( $+.52$ ) than of partly manufactured products for the current year with raw materials for the preceding year ( $+.38$ ), or with finished products for the succeeding year ( $+.32$ ). Furthermore, the last two coefficients are of approximately the same size. It is just possible that the agreement between the intermediate and other stages of manufacture might have been closer had the period been reduced to quarters.

<sup>1</sup> The phrase quoted refers to three sets of index numbers of prices of five selected commodities in their raw, partly manufactured and finished states.

TABLE VI. — FIVE COMMODITIES IN THEIR RAW, PARTLY MANUFACTURED AND FINISHED STATE (1890-1910)

Series Correlated	The "Five Triplets"		
	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Partly manufactured products and raw materials	+ .38	+ .76	— .15
Finished products and raw materials	+ .52	+ .52	— .17
Finished products and partly manufactured products	+ .32	+ .69	— .04

But this greater sensitiveness of raw materials, suggests Mitchell, may mean that consumers' goods are less sensitive than producers' goods because the former are chiefly finished products. He tests this situation by constructing and charting<sup>1</sup> series which contain, not the prices of raw materials, but simply those of consumer's manufactured products on the one hand and producers' manufactured products on the other. Inspection of his graphic presentation leads him to the conclusion that from the point of view of sensitiveness to alterations in business conditions, as well as of the range of the oscillations, producers' manufactured articles occupy a position intermediate between that of raw materials and consumers' goods.

It is true that the indices of variability of the three series, as well as their respective curves,<sup>2</sup> reveal wider oscillations in the goods as the raw state is approached. Below are the measures of dispersion of the three series in question:

TABLE VII. — DISSIMILAR PRICE FLUCTUATIONS OF PRODUCERS' AND CONSUMERS' GOODS

Series	Coefficients of Variation — Original Series	Standard First Differences	Deviations Original Series
Raw materials, producers' goods	15.9	7.6	18.4
Producers' manufactured goods	11.0	6.8	12.0
Consumers' manufactured articles	8.5	4.7	9.0

<sup>1</sup> Business Cycles, Table 6, p. 103, and Chart 4, p. 103.    <sup>2</sup> Ibid., Chart 4, p. 103.

It will be observed that, whatever method we pursue, the relation found is that advanced by Carver<sup>1</sup> and accepted by Mitchell in explanation of the business cycle.

But the figures when subjected to the correlation method do not support the proposition that the prices of producers' goods characteristically move earlier in point of time than those of consumers' commodities. For when the price series for consumers' manufactured commodities is compared with that of producers' manufactured commodities for the previous year the degree of agreement is only moderate (+.31), whereas the coefficient of correlation of the concurrent figures is substantial (+.81). Likewise, raw materials compare with producers' manufactured articles most favorably when the figures compared are for the same year (+.87).

TABLE VIII. — RAW MATERIALS AND MANUFACTURED COMMODITIES USED BY PRODUCERS AND BY CONSUMERS (1890-1910)

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Manufactured articles used by consumers, and manufactured articles used by producers	+.31	+.81	+.02
Raw materials used by producers, and manufactured articles used by producers	-.00	+.87	+.48

#### IV

Sombart's theory that business cycles are caused by the different rhythms of production in the organic and inorganic realms suggests to Mitchell a comparison of the prices of minerals, the characteristic inorganic raw materials, with the prices of organic goods such as forest, animal and farm products.<sup>2</sup> For the purpose at hand

<sup>1</sup> Quarterly Journal of Economics, May, 1903, vol. xvii, pp. 497-500.

<sup>2</sup> Mitchell, Business Cycles, Chart 5, p. 105, and Table 7, pp. 106-07. The series are made up of 41 mineral, 19 forest, 41 animal and 58 farm products.



the prices of raw materials only are considered by him, on account of their independence of improvements in the arts. He finds that "of the four series, the inorganic mineral products reflect the business cycles with least distortion for the whole period; but their superiority as a 'trade barometer' over the organic forest products is due chiefly to the steady rise of the latter from 1901 to 1907, . . . due to a gradual reduction in the supplies of lumber within easy reach of the great eastern markets from which the quotations come, and to a closer organization among the lumber interests. . . . In the case of animal and farm products, however, where dependence is not upon natural deposits of minerals, and of forests which have grown through decades, but upon the fruits of human labor during one or two seasons, frequent contradictions between the movements of prices on the one hand and changes in business conditions on the other hand seem likely to continue for an indefinite time to come. Sombart's theory in other words might be more accurately formulated in terms of contrast between goods the supply of which within short periods depends largely upon the weather, and goods the supply of which within short periods depends almost entirely upon the activity of enterprise."<sup>1</sup>

The correlation of these figures yields results which in part corroborate the conclusions set forth. The maximum correlation of mineral products with the other three series is greatest for forest products (+.67), slightly less for animal products (+.38), and practically insignificant in the case of farm products (+.02). The closer concurrent correlation between forest products and the other organic products (farm +.32, animal +.48) than between the inorganic products (minerals) and the same organic goods (farm +.02, animal +.38), is interesting in the light of Mitchell's suggestion that

<sup>1</sup> *Business Cycles*, pp. 108-09.

forest products since 1900 have been losing their force as a business barometer.

The moderate degree of correlation between farm products for the current year and mineral and forest products for the preceding year (+.42 and +.34 respectively) is worthy of note. It is therefore evident that, to some extent at least, mineral and forest products unite in forecasting the prices of farm products, despite the close dependency of farm production upon weather conditions, and the inelastic nature of the demand curve for agricultural products. So that, unless the relation established is to be interpreted as an accidental coincidence, one is unable to join Mitchell in the assertion that "weather conditions constitute such an important factor that movements initiated in the mineral industries would be but imperfectly reflected in the farming industry."

TABLE IX. — ORGANIC AND INORGANIC GOODS IN THEIR RAW STATE (1890-1910)

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Forest products and mineral products	+.14	+.67	-.02
Animal products and mineral products	-.18	+.38	+.18
Farm products and mineral products	+.42	+.02	+.12
Farm products and forest products	+.34	+.32	-.03
Animal products and forest products	-.19	+.48	+.34
Farm products and animal products	+.13	+.50	+.16

## V

Wages remain to be discussed. Mitchell directs attention to the incompleteness of the data <sup>1</sup> due to the fact that, for the most part, only manufacturing industries are included. But since manufacturing centers exhibit the phenomena of business cycles in a pronounced degree, it is perhaps fortunate that the limita-

<sup>1</sup> The American figures are taken from the United States Bureau of Labor Bulletins of July, 1904-08. The figures are weighted according to the number in each employment in the construction of new series only.

tions are as they are. Mitchell concludes that "the figures indicate that the prices of labor are influenced by changes in business conditions, but in less degree than the prices of commodities at retail," and in a much less degree than those of commodities at wholesale. Further, "the range covered by the relative prices of labor is narrower, and the degree of concentration about the median is greater than with wholesale prices."<sup>1</sup>

To what extent are these conclusions justified by the method we are pursuing? In the first place, if wholesale prices may be taken as a barometer of business conditions, retail prices respond more quickly to changes in wholesale prices than do wages. For wholesale prices correlate more closely with the former (+.77) than with the latter (+.57). The fact yet remains that they move concurrently, and that there is a more substantial agreement between wholesale prices for the current year and wages for the following year (+.51) than with retail prices for the following year (+.30). The standard deviations of the first differences of these three series show that the character of the dispersion is as described by Mitchell, greatest for wholesale prices (5.8), less for retail prices (2.4), and least of all for labor (2.2).

TABLE X. — WAGES, AND COMMODITIES AT WHOLESALE AND RETAIL IN THE UNITED STATES (1890-1907)<sup>2</sup>

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Wages and wholesale prices	+.51	+.57	+.40
Retail prices and wholesale prices	+.30	+.77	+.23
Series	Standard Deviations (First Differences)		
Wholesale prices	5.8		
Retail prices	2.4		
Wages	2.2		

<sup>1</sup> Mitchell, *Business Cycles*, pp. 132, 133.

<sup>2</sup> Wholesale prices, Dun-Gibson Index Number Improved.

Retail prices of thirty staple foods.

Wages per hour in forty-one manufacturing industries.

Mitchell's investigation of English wages leads him to assert that "English wages pursue a course far more even than do prices at wholesale. But when compared with the Board of Trade's series for the retail prices of food the difference is less marked. . . . Finally, when the English and American index numbers are compared they reflect the differences in the course of business cycles."<sup>1</sup>

TABLE XI. — WAGES, AND COMMODITIES AT WHOLESALE AND RETAIL IN ENGLAND (1890-1910)

Series Correlated	Coefficients of Correlation		
	One Year Previous	Concurrent	One Year Lag
Wages and wholesale prices (Sauerbeck)	+ .47	+ .71	— .25
Retail prices and wholesale prices	+ .39	+ .07	— .02
Retail prices and wages	+ .38	+ .18	— .23
Wholesale prices and wages	— .25	+ .71	+ .47
American wages and English wages		+ .49	

Series	Standard Deviations (First Differences)
Wholesale prices	5.1
Retail prices	2.7
English wages	2.2
American wages	2.2

In striking contrast to the American results, the present inquiry discloses the fact that, in point of time, English wages move in close harmony with wholesale prices (+.71), while retail prices show but a slight degree of similarity in their fluctuations (+.07). Both series show a moderate degree of correlation with wholesale prices for the previous year. Again, wages agree more closely with retail prices for the following year (+.38) than for the previous year (— .23).

So far as the degree of fluctuation is concerned, it appears that wages do pursue a course far more even

<sup>1</sup> Mitchell, *Business Cycles*, pp. 136 and 139. Mitchell points out that English wage statistics are less reliable than the American data in that "while agriculture and coal-mining are included, the manufacturing industries are by no means so well represented" as in the American figures.

(2.2) than do prices at wholesale (5.1); and when compared with retail prices the difference is less marked (2.7).

## VI

We may now conclude and summarize.

It is clear from this analysis — which rests, be it remembered, on annual data — that the prices of consumers' goods at retail do not lag behind the same goods at wholesale in the manner indicated by Mitchell, but move concurrently with slightly differing ranges of fluctuation. Producers' goods, further, exhibit a wider range of fluctuation than consumers' goods even at wholesale. But an examination of the monthly as well as of the annual figures does not enable one to confirm Mitchell's assertion that "within short periods as within long the prices of producers' goods appear to be decidedly more sensitive than the prices of consumers' goods to alterations in business conditions." We must turn to quarterly series, constructed from the monthly figures 1907-1910 inclusive, which, tho inadequate, constitute the only available evidence that the prices of consumers' and producers' goods do move in the manner indicated by Mitchell. Even here the evidence is not unmistakable.

The sensitiveness<sup>1</sup> of prices of commodities to business conditions does not appear to be a function of the proximity to or remoteness from the raw state. A comparison of the annual figures of twenty pairs of raw materials and their manufactured products, as well as five triplets of raw materials, their half-finished and finished products, reveals neither a lag of half-finished products behind raw materials, nor a lag of finished

<sup>1</sup> The word "sensitive" is used here to mean both quickness and magnitude of fluctuations.

products behind half-finished goods or raw materials. The removal of raw materials from the producers' goods does not alter the results. Coefficients of variability, ranging from 8.45 in the case of consumers' goods to 10.98 in the case of producers' manufactured commodities, and to 15.87 in the case of raw materials, harmonize with Mitchell's interpretation, and lend support to Carver's theory that crises arise from the dissimilar price fluctuations of producers' and consumers' goods. That the prices of producers' goods do not characteristically move earlier in point of time than those of consumers' commodities is evidenced by the high degree of concurrent correlation of the three series with each other.

The author's conclusions as to Sombart's theory need qualification. The annual figures paired concurrently show that mineral, forest, and animal products move together, and that these movements are reflected one year later in farm products. Animal products, however, agree more closely with forest and farm products than with minerals. The results indicate that forest products still remain a good index of business conditions, notwithstanding the limitations of supply and conditions of monopoly existing in the industry.

It is obvious that Mitchell is correct in asserting that American wages show a stability superior to both retail and wholesale prices. But, contrary to Mitchell, wages in the British Isles exhibit much the same range of fluctuation as those in the United States. In point of time English wages display a more intimate relation to wholesale prices, and join these in preceding prices at retail; while all three of the American series move together. This difference in the relation of wages to business conditions may be due, not to irregularity or incompleteness of the figures, but to the influence of trade

unionism or to a significant difference in the industrial and commercial conditions in the two countries.

The present analysis thus supports Mitchell in some of his conclusions. In many others the results appear to be inconclusive, and in some cases even contradictory. Probably the safest and most important conclusion of this study is this: annual figures do not suffice. Annual data are open to question because of their non-homogeneous content. For instance, the year 1907 witnessed a period of considerable business activity followed by feverish activity, then collapse and depression; 1908, depression in the beginning and revival in the later months. To unite the figures for the earlier and later months of such years serves not to clarify but to confuse any study of these short-time phenomena. Since a study of crises is perforce a study of these short-time movements, the results are vitiated in the measure that these heterogeneous elements are merged in annual figures. While the lag is in some cases a year, in other cases it is obviously not a year, but some shorter period.<sup>1</sup> The use of annual figures is legitimate as a preliminary step, but not as a basis for final conclusions. It is my conviction that reliable results can be obtained only by a resort to quarterly or monthly data, preferably the former. Mitchell's work marks an epoch. But his study merely points the way. The task yet remains for some one with time and patience to dig out the appropriate data and to continue with more refined methods the inquiry so well begun.

B. W. KING.

WEST VIRGINIA UNIVERSITY.

<sup>1</sup> This view is substantially that expressed by Professor O. M. W. Sprague in a recent review of Mitchell's *Business Cycles*. "When the investigator is concerned with broad general tendencies over a long period of time annual figures serve the purpose. But in the case of the business cycle it is a series of changes which follow one another in rather quick succession that are to be measured." *Journal of Political Economy*, vol. xxiv, p. 606 (June, 1916).



## TRADE UNIONISM IN THE IRON INDUSTRY: A DECADENT ORGANIZATION<sup>1</sup>

### SUMMARY

I. Earlier history of the Amalgamated Association of Iron and Steel Workers, 674. — Its strength broken by the Homestead strike of 1892, 675. — Its policy suicidal, 676. — Gradually driven out of the Steel Corporation, 677. — II. The Association's annual agreements with the Western Bar Iron Association, 678. — III. Reasons for the continuing hold of the union, 681. — Dissension among the iron workers, 682. — The insurgent movements defeated, 682. — IV. Place of the Association in the sheet and tin plate industry, 686. — V. Its future dubious, 688.

### I

LOCAL unions were formed in the iron industry as early as the decade of the forties; but it was not until after the Civil War that they attained permanence of organization. By 1873 there were three national unions: the Sons of Vulcan, with a membership of 3331, was composed of puddlers and their helpers; the Associated Brotherhood of Iron and Steel Heaters, Rollers and Roughers, with a membership of 700, was composed of the skilled men in that branch of the industry; and the Iron and Steel Roll Hands of the United States, with a membership of 473, was composed of the semi-skilled

<sup>1</sup> The material for this study was collected while the writer was acting as special agent for the United States Commission on Industrial Relations. Grateful acknowledgment is made to union officials and to employers and their representatives who contributed information.

On the early history and policies of unions in the iron and steel industry, valuable material is in the following: Wright, C. D., *The Amalgamated Association of Iron and Steel Workers*; *Quarterly Journal of Economics*, vol. vii, pp. 400 ff.; *Conditions of Employment in the Iron and Steel Industry*, Senate Document no. 110, 62d Congress, 1st session, vol. iii, pp. 107 ff.; Fitch, J. A., *The Steel Workers*; and Fitch, J. A., *Unionism in the Iron and Steel Industry*, *Political Science Quarterly*, vol. xxiv, pp. 57 ff.

men in the rolling crews, together with a few rollers and roughers.

Inter-union jealousies and disputes weakened the bargaining power of each of these organizations. The recognition of this weakness brought about their consolidation in 1876 under the name of National Amalgamated Association of Iron and Steel Workers. The name was largely a misnomer, since nearly all of the members were iron workers. Steel production in the United States had not yet become an important part of the industry.<sup>1</sup>

In the Amalgamated Association, the Sons of Vulcan formed 85 per cent of the original membership and for a considerable time dominated its policies. From the first a sliding scale of wages, based upon fluctuations in the market price of iron, was established and maintained by the union. The success of the union in the iron industry was continuous and progressive during the first fifteen years of its existence and by 1890 nearly all mills signed its scale. Closed union shop was strictly adhered to in the unionized mills at this time. In the steel industry the union never gained the advantage it enjoyed in the iron industry and in its strongest years probably never controlled 50 per cent of the steel workers.

The high mark in membership in the Association was reached in 1891, when 24,068 were enrolled. Previous to this time there had been numerous strikes and in 1882-83 a series of disputes had resulted in a tem-

<sup>1</sup> During the years from 1860 to 1864 only about one per cent of the total production of pig iron was used in making steel. The crucible process had been introduced only a few years before and the "cementation" process was slow and expensive. Within the next five years both Bessemer and open-hearth steel were produced on a commercial scale. Yet during the first half of the seventies the total production of steel was less than one-tenth as great as that of puddled iron and did not equal it until the middle of the eighties. Since that time the production of iron has barely held its own, indeed has declined slightly; while the output of steel has increased steadily until now it is more than fourteen times as great as that of finished iron.

porary loss of union strength. The Homestead strike of 1892 was the first blow to the union from which it did not fully recover. Membership dropped to 20,975 in 1892; to 13,613 in 1893; and to a probably overstated estimate of 10,000 in 1894. The Homestead strike almost disrupted the union in its steel connections and greatly weakened it in the iron mills.

During the next decade the union steel workers hardly maintained the remnant of their strength left them at the close of this strike. At the same time the production of steel was increasing very rapidly. In its relation to the steel manufacturers the policy of the union was suicidal. Frequent changes were being made in the technique of the industry and with each improvement the union demanded the full advantage of the new machinery and tried to keep the ton rate of wages at the same level. At the same time the new improvements made possible the substitution of an increasing proportion of unskilled labor for skilled. The union did not organize these unskilled men and hence did not have their active support in labor disputes. Finally, the union limit of output, established at a time when the required number of heats took approximately twelve hours, was rigidly maintained even after improvements in machinery permitted a shortening of the day to ten hours. The union was unwilling either to increase the number of heats to make a full twelve hour day or to decrease its number to make an eight hour day and thus permit continuous operation of the mills.

Throughout the decade following the Homestead strike, the steel manufacturers temporized with the union, granting agreements for a part of their mills and operating others as non-union or open shops. In reality this was a mere subterfuge to prevent open conflict, since the union had but little direct influence

upon wages in the steel industry. When consolidation became the order of the day in the steel industry in 1900, unionism revived for a time and the membership of the Amalgamated Association rose from 11,050 in 1899 to 14,035 in 1900. Thinking that the difficulties which the consolidation presented to the employers and the appeal to the investing public for the sale of securities would handicap the employers in wage bargaining, the union assumed its former aggressiveness and amended its constitution in 1900 as follows: "Should one mill in a combine or trust have a difficulty, all mills in said combine or trust shall cease work until such grievance is settled."

The United States Steel Corporation accepted this challenge of "all or none," refused to grant agreements for all its mills, and a strike resulted. The public support which the union expected did not materialize. Dissensions developed within the organization and the members in some mills refused to stay on strike. Furthermore, the predominance of non-union mills already running made the strike of comparatively little consequence to the Steel Corporation. Recognizing their defeat, the union proposed arbitration. This was refused by the Corporation. A little later the union accepted terms proposed by the Corporation which were much less advantageous than those offered at the beginning of the strike.

As a result of this strike the union suffered a loss in membership from 15,198 in 1902 to 10,904 in 1904. From 1902 to 1908 inclusive, the United States Steel Corporation continued to temporize with the Amalgamated Association, and by granting agreements for mills which were later dismantled or kept out of use it succeeded in so weakening the union in its mills that in 1908 only fourteen mills of the Corporation were union-

ized; and of these fourteen, two had been definitely abandoned. In 1909, in order to make the labor policy of the entire Corporation consistent, "open shop" was declared in these mills. A strike followed but was lost. The entire Steel Corporation has since been non-union.

## II

The United States Steel Corporation has never been a producer of puddled iron. In this branch of the industry the Republic Iron and Steel Company at first operated most of the iron mills and bargained with the Amalgamated Association through the trade agreement system. Beginning as a producer of iron, this corporation has gradually dismantled and abandoned its iron mills until it has but two remaining. These two mills make agreements with the Amalgamated Association, or rather, they accept the agreements which the Association makes with the Western Bar Iron Association.

As the Republic Iron and Steel Company abandoned the production of iron, independent mills appeared to carry on the industry. Until 1906 the Amalgamated Association had made its yearly agreements with the Republic, and other union mills had accepted the scale so agreed upon. The Republic dealt with the union at this time through the company's labor commissioner, a man who had formerly been a trustee of the union. This commissioner has acted in a similar capacity for the other union mills since 1892. By 1906 the mills outside of the Republic controlled the manufacture of iron. Partly because of the necessity for dealing collectively with labor and partly because of their mutual interests in meeting the increasing competition with steel, twelve of these independents organized the Western Bar Iron Association and engaged the Republic's former labor commissioner as executive secretary.

In 1906 the new association made an agreement with the union which was practically a renewal of the existing agreement. These agreements, signed each year since, always represent a compromise between what the union asks and what the employers are at first willing to grant. In addition to the reasons which make this true of every trade agreement, special reasons apply here. The scale is in two parts — the base rate and the footnotes. There has been but little change in the base rates during the life of the agreement system. Changes in the footnotes are more frequent. Each year the officials of the union make a fight over the wording of a new agreement, even tho few changes are expected. A large number of footnotes are always asked for: first, in the hope that a few will be accepted by the employers at their face value or that some may pass through as "jokers"; and second, many are introduced for the purpose of display and prolonged discussion, even tho the union officials have no expectation of their acceptance. The members of the union at least are in this way impressed with the importance of their organization.

The agreement is in force for one year, from July 1 to June 30. The employers would prefer a long-term agreement — three to five years — since in the history of the agreement system there have been no long periods of decreasing wages and since they feel that more settled conditions would obtain under a long-term agreement. The union officials prefer a one year agreement as the only practicable means of holding the union intact.

At the time of the formation of the Western Bar Iron Association, the agreements provided a plan of arbitration in case conciliation failed at any time. But both employers and union feared to put the plan to a test and in 1909 it was abandoned. The agreements since that

time have provided that there shall be no cessations of work until after an investigation of grievances shall have been made. All grievances are settled by the secretary of the Western Bar Iron Association and the union officials.

It is understood that a wage conference will be called by July 1 of each year. In the event of failure to reach an agreement, the existing agreement continues in force for one month while the conference committee continues deliberations. A longer period than one month is provided if both parties consent. Previous to July 1, the union has its annual meeting and draws up a tentative scale for the guidance of its conference representatives. The representatives, however, are not bound by this tentative scale. These are twenty in number, five chosen by the president of the union, from each of the four trades in the industry — boiling, finishing, sheet making, and tin making. The employers are represented by the secretary of the Western Bar Iron Association and a committee composed usually of one representative from each mill in the Association.

A few outsiders, both in the eastern field and in isolated districts, sign the scale adopted by the Western Bar Iron Association. Other outsiders operate non-union mills and little effort has been made recently to unionize them. In the East the conditions of production are such that less skill is required than in the West. Wages are correspondingly lower in the eastern mills. Preferential shop is the rule where the scale is in operation, altho even this is not guaranteed in the agreement.

The footnotes provide for direct limitation upon output, both as to the size of the heat and the number of heats. The number of heats per turn determines the length of the working day, which is usually ten to eleven hours. In addition, the footnotes fix the prices of



"extras," determine minor issues such as shields on furnaces, top buggies, repairs, payment for lost time and for spoiled materials. The footnotes also prescribe the number of helpers in some branches of the industry and the source of their wages; the number of rollers to be employed in each mill; the proportion of helpers' wages to those of skilled men, and so on.

In a sense, the men covered by the agreement include the foremen. For example, the muck roller is a sort of contractor and hires his night roller and all helpers. This is true also in other branches of the industry.

There is no regular system of apprenticeship in the iron industry. The industry is scarcely maintaining its annual production in competition with steel and hence does not require an increasing supply of skilled men. When a man drops out of a skilled job a series of promotions follows until the man at the bottom moves from his unskilled work into a semi-skilled job. As will be shown later, the union gives attention to him for the first time when this promotion is granted him. The mill superintendent usually controls promotions, tho he sometimes consults with or receives suggestions from the union men.

### III

In the face of complete non-unionism in the steel industry and even in the iron mills in the East, the Amalgamated Association, nevertheless, is able to maintain its agreements with the Western Bar Iron Association for very definite reasons. While the technique of steel production has experienced revolutionary changes and is still undergoing such changes, all of which make possible the use of unskilled and recently arrived immigrants, the iron industry has experienced practically no

change in technique in forty years; because, it is said, no inventions have as yet been found practicable to do for iron what has been done for steel in making the latter primarily a machine product. Hence practically the same proportion of skilled men is present in the iron industry as was required two generations ago. Furthermore, there is an absence of concentration of capital in the iron industry and only one corporation in the Western Bar Iron Association operates more than one mill. Finally, only a relatively small part of the employees in the industry are protected by agreements, and these few are the most indispensable men in the industry. English speaking men still hold the skilled jobs. Not over 25 per cent of the total force in the union mills are members of the Amalgamated Association and not over 35 per cent are covered by the agreements. While others have been eligible to membership since 1889, theoretically at least, they have been practically excluded. Attempts to unionize the 65 per cent not covered by the agreements into separate organizations have usually been frowned upon by officials of the Amalgamated Association, so that the union has in reality been a great aid to the employers in keeping down the radical element in the industry.

In addition to the ever-present minority of such radicals, there have been four distinct organized movements to democratize the Amalgamated Association within recent years, all of which have been defeated by a combination of the conservatives in the union and their employers. In 1907 some of the puddlers withdrew from the union and formed a separate organization which they called the Sons of Vulcan. They claimed that they were not receiving sufficient attention from the more highly skilled members of the union. For a time they were unable to gain sufficient strength to

force recognition from their employers, but they finally secured a number of flat-rate agreements to supplant the sliding scale of the Amalgamated Association. As soon as prices fell so that the sliding scale of the older union was more advantageous to the employers, a combination of employers and the older union was effected by which the Sons of Vulcan was disrupted in one mill after another. Since then many of the members of the disrupted union have returned to the Amalgamated Association.

In 1908 the president of the union listened to the wishes of the growing minority and announced a "New Policy," involving a more democratic organization of the men in the mills. This too was defeated by the conservative members of the union. The new policy involved the substitution of mill scales for the existing general scale. This may have helped to defeat it.

During the convention year from June, 1912 to June, 1913, two insurgent movements among the wage earners in the iron industry took definite form. One, styled the Progressive Movement of the Amalgamated Association of Iron, Steel and Tin Workers, was an attempt to place the control of the Association in the hands of the then democratic minority and to reorganize it as an industrial union. It was avowedly a movement within the parent organization and not a secession from it. Its declaration of principles was significant, and the essential passages are given below.<sup>1</sup>

<sup>1</sup> First, We believe in industrial unionism:

(a) Because the manufacturers of iron and steel from mine to finished product are organized industrially to fight organized labor.

(b) Because our present form of organization as a craft of skilled workers cannot meet the present industrial concentration and fight to win. . . .

Second, We believe in the initiative and referendum and the right of recall:

(a) Because our present undemocratic form of organization centralises too much power and responsibility in the hands of a few, which permits that few to become absolute dictators.

(b) Because when the responsibility of control and management of the internal affairs of the organization are placed in the hands of all the members that responsi-

Fearing to test the strength of this Progressive Movement in the convention of 1913, the national officials took advantage of a technicality in an amendment to the constitution and declared that the usual annual election would not be held but that the existing officials would hold office for another year. By the following year the zeal of the Progressives was considerably chilled. This insurgent minority still exists and has forced some concessions from the conservatives, such as the election of officers by referendum vote; but it has not yet succeeded in making an industrial union of the Amalgamated Association.

The second insurgent movement, contemporaneous with the one above described, took the form of a secession from the Amalgamated Association. Altho originating in the sheet and tin industry, its founders expected to extend it to every branch of the iron and steel industry. The manifesto of this organization is also significant.<sup>1</sup> After an analysis of the relation of employer

bility will reflect itself in better understanding and in the diffusion of knowledge and education. . . .

Third, We believe that the organization should make changes in the national official force, not because of personal or individual animosity, but because such changes are imperatively needed:

(a) Because the present national officers have nothing to offer to meet the situation that confronts the organization.

(b) Because the present officials have opposed and hindered all progressive changes and measures, and have not advanced any new ideas or policies to meet the situation.

(c) Because the present national officials have failed absolutely to retain the confidence and approval of the rank and file of the membership, and the men who work in the open shops and the non-union mills.

Sixth, We are opposed to the dual organizations known as the Industrial Workers of the World and the Sons of Vulcan:

(a) Because in the case of the former, we believe that the Amalgamated Association principles and policies can be changed within the organization to conform to the basic principles of the I. W. W., which is industrial and class solidarity, and that is what the Progressives in the Amalgamated Association are urging and agitating for.

(b) Because the Sons of Vulcan form of organization is obsolete, and its only strength is derived through the Amalgamated Association, and because such dual organizations are used as a club to break the strongest organization by the manufacturers. . . .

<sup>1</sup> It reads in part as follows:

To the workers of the iron and steel industry:

We, the workers of the sheet and tin industries of Niles, Ohio, have pulled away from the Amalgamated Association of Iron, Steel and Tin Workers, and have formed a

and employee under the existing economic system, it declares for direct action as the means of securing justice to all men employed in the industry. The new organization, suiting its actions to its words, actually began a campaign of direct action by walking out of three mills at Niles. Through the coöperation of the Amalgamated Association, the employers were able to start their mills again and to break up, for the time at least, the Industrial Iron and Steel Workers of America.

The fear of the recurrence of such movements as this organization started, and as the Progressive Movement above described had planned, is a continuing source of strength to the conservatives in the Amalgamated Association. Some employers frankly admit that they consider an agreement with the Amalgamated Association, covering a relatively small percentage of their employees and these the most indispensable, as a sort of insurance against a more democratic union which might force terms for all men in the mills.

In addition to this negative influence of the Amalgamated Association, its conservative policy makes a positive appeal to the employers in the bar iron industry. The supply of highly skilled men in the industry is relatively small and it is advantageous to keep this supply in a mood to be satisfied with the conditions of work. This is especially true since in practice the agreements are very flexible. For example, in a dull

new organisation, known as the Industrial Iron and Steel Workers of America, composed practically of all workmen working in or about said industries, with one single exception — that is the rollers.

The object of resorting to such stringent measures (that is, denying the rollers admission into our movement) is simply because our past and present experience (which is the groundwork of all knowledge) has revealed this truth, that the majority of them are devoid of principle; further reasons for taking this stand against the rollers are, because the position their selfish desires have placed them in possession of, has made cowards, traitors, and even strike-breakers of them, and by their attitude and disposition, which has been made manifest, it is a clear revelation that they are (with no question for doubt) devoid of the true moral courage deemed necessary to coöperate with a movement which tends to remove the burdens of oppression.

season, when work is scarce and laborers are plentiful, the union is not too insistent upon the enforcement of all footnotes. This amounts in some cases to the equivalent of wage reductions for such seasons, even below what the agreement provides for specifically.

Finally, the secretary of the Western Bar Iron Association undoubtedly plays a large part in the continuance of the agreement system in the iron industry. Having been at one time a national trustee of the Amalgamated Association, he knows the union as well as the association which employs him. He acts as a sort of buffer between the opposing interests. He is trusted by both union men and employers, and hence is able to take a more or less neutral stand between the radicals of both parties. In short, when disputes arise, he acts more as judge than as attorney for either the plaintiff or the defendant.

#### IV

In the sheet and tin plate industry the Amalgamated Association is tolerated by some of the independent mills, but it has ceased to be an active factor in wage bargaining. In the first place, the American Sheet and Tin Plate Company, by producing approximately 40 per cent of the total output of sheet and 60 per cent of the output of tin plate, controls wages in the industry. In the second place, but 22 per cent of the sheet mills and 11 per cent of the tin plate mills are unionized. Then too, the manufacture of tin plates is a tariff fostered industry and wages are affected by changes in the tariff. In fact, the relation between union wages on the one hand, and the tariff and the American Sheet and Tin Plate Company's wages on the other, is so close that altho wage scales are signed for one year in the union

sheet and tin plate mills, it is understood that if the American should cut its wages or if an unfavorable change is made in the tariff, a new wage conference may be demanded within the year.

Hence, in general, American Sheet and Tin Plate wages determine union wages in the independent unionized mills. The American tolerates no footnotes but its base rate is correspondingly higher than the base rate in the union scale. Non-union independent mills pay a little less than the American and the union mills, but as a rule they do a lower grade of work and use less skilled men. Many of the unionized independent mills are specialty mills and are willing to deal with the Amalgamated Association in order to secure the services of the more highly skilled men represented in the Association.

The policy of the union in dealing with the sheet and tin plate manufacturers is essentially the same as that outlined in the discussion of the agreements with the Western Bar Iron Association. The sheet and tin plate manufacturers secure the same protection against the formation of an industrial union and the same assurance of the continued good will of their highly skilled workmen.

Unlike the bar iron industry, the sheet and tin plate industry has no definite association of manufacturers organized for the purpose of dealing collectively with labor. An organization known as the Association of Sheet and Tin Plate Manufacturers, representing one hundred and seventy-four sheet mills and seventeen tin plate mills, gives attention to such matters as credits, spelter prices, and trade conditions, but it does not deal with labor directly. Some of its members operate union mills, while others do not deal with the union. Manufacturers having ninety-eight sheet mills and fifty tin



plate mills send representatives to deal with the union each year. But the agreements which the conferences frame are binding only upon those manufacturers who sign the scale as individuals.

## V

The future of the Amalgamated Association of Iron, Steel, and Tin Workers is hard to foresee. Many of the highly skilled men, even in the union mills and working under the protection of trade agreements, are indifferent toward the organization and refuse to keep up their membership. Some interest is maintained by the union officials by a pretense at struggle and victory in making agreements, when no real contest with employers exists.

But it does not appear that the union is able to control the recruits to its trades. The men who now perform the unskilled labor in these industries, and from whom the future skilled men must be selected, are largely southern Europeans, whose allegiance to craft union principles has not yet been generally demonstrated. At present these workers are entirely ignored by the skilled members of the union. The American Federation of Labor has organized a few of these unskilled men into locals affiliated directly with the Federation. No general organization even along these lines has been attempted. The officials of the Amalgamated Association are inclined to favor the organization of the unskilled workers according to the plans laid down by the A. F. of L.; but they are unwilling to commit themselves to the policy of taking over these locals later and making them a part of the Amalgamated Association.

In the non-union shops and in the mills of the American Sheet and Tin Plate Company, southern Europeans are rapidly displacing the American born and the repre-

sentatives of the older immigration in the semi-skilled and even in the skilled branches of the industry. A shift of such men from non-union mills to those that are now unionized would be an easy task. The same conditions exist in the bar iron mills, tho perhaps in a somewhat lesser degree than in the sheet and tin plate mills.

In other words, it is not quite clear how the Amalgamated Association can retain even its present limited strength for another generation. And to become a real force in the industry, very radical changes are imperative. The conservatives now in control of the union are trying to maintain a form of organization which is obsolete. In an industry where the employers set the standards for effectiveness of the forces of organized capital, labor cannot hope to safeguard its interests by the weak protests of old-line craft unionism. As already indicated, the Amalgamated Association has ceased to be an effective factor in wage bargaining in the iron and steel industry. Instead, its existence in its present form bars the way to the creation of a stronger and more inclusive industrial union.

H. E. HOAGLAND.

UNIVERSITY OF ILLINOIS.

## GENERAL INTELLIGENCE AND WAGES<sup>1</sup>

### SUMMARY

Unsatisfactory discussion of the subject by economists, 690. — The Binet tests of general intelligence, 691. — Applications in educational psychology, 692. — Application to relation between intelligence and earnings, 694. — Large possibilities of the method, 697. — Need of separating tests of intelligence from those testing environment and schooling, 698. — Vocational guidance, 701. — Conclusion, 703.

MUCH as has been written on "differences of wages" and their relation to intelligence and ability, the discussion of the subject by economists has been far from satisfactory. The early writers, beginning with Adam Smith, were not disposed to give much weight to general intelligence. Later writers, notably J. S. Mill, gradually recognized general intelligence to be important in affecting the productiveness of labor. Others of still later date, such as F. A. Walker, suggested that general intelligence might affect either the general level of wages or differences in wages; and, finally, some recent writers find a tendency for wages to be adjusted, other things equal, to differences of efficiency, ability, or intelligence.<sup>2</sup> In all of this discussion the chief difficulties have been the lack of a clear definition of ability or intelligence, and the absence of a method of measurement independent of wages or success.

The unsatisfactory character of the opinions of the early writers is due in part to their vague conception

<sup>1</sup> The writer takes pleasure in acknowledging his indebtedness to Mr. Donald G. Paterson of the University of Kansas for valuable suggestions and criticisms especially on the psychological aspects of this paper.

<sup>2</sup> Cf. H. L. Moore, *Laws of Wages*, chap. 4, and a criticism by the present writer, in this *Journal*, vol. xxvi, p. 757.

of the relation of heredity and environment to ability. Proximately it may be true that skill and training are the important factors in determining wages; but skill and training may presuppose general intelligence. Even Mill believed that intelligence could be diffused by education. A clear concept of intelligence in the modern view is found for the first time in Walker; but he also believed that intelligence could be gradually developed in a community as a result of long continued popular education. Taussig points specifically to the question of the origin of general intelligence: "it is not possessed by savages; it is a slowly acquired quality of civilized man."<sup>1</sup> Early writers were perhaps misled by inferring from the development of intelligence with age the supposed corollary that it was developed by education. We are less concerned in this paper, however, with the correctness of theories of its origin and causation than with the clear definition and measurement of intelligence.

The problem of the measurement of intelligence arose as a problem of educational psychology. How could the work of the teacher be properly measured? Were there differences in the abilities of children or were all differences due to differences in environment, training, and experience? The study of the feeble-minded gave a clue as to the importance of heredity in determining mental endowment. The problem of the measurement of intelligence attracted the attention of Binet, a French psychologist; he was commissioned in 1903 by the French government to select the backward children for special instruction. He found he had to work out a series of mental tests to determine what children were backward. Various measures had been devised to test this or that special mental characteristic or specific

<sup>1</sup> Principles, vol. i, p. 101.

capacity. By an average of a series of tests, Binet suggested, a measure of *general intelligence* could be developed. The problem then was to determine what the child ought to be able to do at the various ages. This difficulty was surmounted by giving the tests selected to large numbers of children of each age, and finding from the experience of a large number of cases what the average child of each age could perform. If then a child of ten was examined and found to be able to perform only as much as an average child of six, he was termed feeble-minded, or intellectually deficient.

Some modifications have been found to be necessary in the Binet tests. The Stanford revision made changes in procedure that resulted in correction of mental age of very young children and of children over ten. Both of these, the Binet tests and the Stanford revision, rate by mental age. Lately other methods of rating have been suggested. Terman suggests the use of intelligence quotients: the index computed compares a given individual with the median performance of a person of the same age. A score of 100 for a child of nine means that the child does as well as the median for that age; a score of 120 means that the child's score is 20 per cent above that made by the median child.<sup>1</sup> The Yerkes' point scale finds a single number representing the child's score; it can be compared to scores made by large numbers of other children of the same or different ages.<sup>2</sup> Another modification suggested by Pintner and Paterson is to rate children in terms of the distributions of children of the same age. A child of nine is rated for example as among the lowest 3 per cent or as a "twenty-five percentile" of the children of that age.<sup>3</sup> These

<sup>1</sup> Terman, L. M., *The Measurement of Intelligence* (1916).

<sup>2</sup> Yerkes, R. M., Bridges, J. W. and Hardwick, R. *A Point Scale for Measuring Mental Ability* (1915).

<sup>3</sup> Pintner, R. and Paterson, D. G. "A Psychological Basis for the Diagnosis of Feeble-mindedness," *Journal of Criminology*, vol. vii, pp. 32-55 (May, 1916).

tests have been applied also to adults. Adults with a mental age of ten years or less are termed feeble-minded.<sup>1</sup> Unemployed men have been tested; lately attempts have been made to secure standards for college men, for University instructors, for children of the white, Negro and Indian races, and for children of different social status.

These tests of intelligence are not the same as informational tests. The latter are based on school subjects and are designed to test the amount of school knowledge the child has acquired. Some of the more widely used educational tests are the Courtis arithmetic test, the Trabue language scales, the Harvard-Newton composition scale, and the Ayres' writing and spelling scales. They may throw light on the quality of the teaching and the value of the pedagogical methods used. A student in the eighth grade may be able to answer questions based on American history that he has just completed. But a boy who has had no schooling whatever may be shown to have equal mental ability in an intelligence test. The literacy test for immigrants is properly speaking not a test of mental ability or capacity but merely of educational opportunity. In general it requires a certain level of intelligence to pass satisfactorily the eighth grade of school or to graduate from the high school.<sup>2</sup> Evidence of school accomplishment may therefore be used as evidence of a corresponding minimum degree of intelligence — except in so far as backward children are promoted beyond their deserts; but the fact that a person has dropped out of school, tho frequently due to mental deficiency, is not proof of it.

<sup>1</sup> The delimitation of the term "feeble-minded" is still a controversial matter. Gilliland gives a good summary of the various methods of diagnosis, with bibliography. Gilliland, A. R., "The Diagnosis of Feeble-Mindedness," *Journal of Delinquency*, vol. ii, pp. 22-25 (January, 1917).

<sup>2</sup> Terman, L. M., *The Measurement of Intelligence*, pp. 93, 94.

These tests are fairly reliable. Ratings of children examined by different trained workers do not vary to any considerable extent.<sup>1</sup> Three hundred and fifty-two feeble-minded children tested three times at intervals of a year show practically no variation in mental age. Normal children tested at different times, 464 tested by Goddard and 83 by Bobertag, show nearly the same relative rank, tho all show progress in mental development.<sup>2</sup> Criticisms of some of the tests have been made that they show the influence of environmental factors rather than native intelligence. The tests criticized have been eliminated in the newer methods of measuring intelligence. For present purposes the intelligence tests may be accepted as accurate measures of native endowment.<sup>3</sup>

The tests thus developed by the psychologists may be used to measure differences of general intelligence among wage-earners and individuals of all social classes. We have for the first time a measure of ability that is independent of reward. By correlating wages with intelligence, we shall be able to test the theory that wages are paid in proportion to intelligence. Further, and perhaps of greater significance, we shall be able to investigate the working of our present industrial system. Does our industrial order succeed in selecting the best fitted and ablest to fill its most responsible positions, or is its method an arbitrary and haphazard empiricism? The use of intelligence tests to find correlations with wages, unemployment, choice of occupation, accidents, and many other factors offers great possibilities for drawing definite, significant, and practical economic conclusions.

<sup>1</sup> Kohn, S. C., "The Binet Test and the Training of Teachers," in the *Training School Bulletin*, pp. 113-17 (1914).

<sup>2</sup> Terman, L. M., *The Measurement of Intelligence*, pp. 112-13. Cf. chap. 7.

<sup>3</sup> See *infra*, p. 695-701.



A few studies of the relation between intelligence and earnings have been made already. Tests to determine general intelligence were applied recently to thirty applicants for positions of policeman and fireman in Los Angeles.<sup>1</sup> The tests were in charge of Professor Terman. In the investigation the facts as to salary received just prior to the examination were secured and correlated with the intelligence quotient obtained. A fairly high correlation,  $r = +.61 (\pm .078)$  was found between wages received and mental age. This correlation was higher than for any other factors correlated, being much higher, for example, than for spelling, handwriting, arithmetical reasoning. One of the applicants was found to be feeble-minded: he had been given a position on the force as an "extra" under the old political régime. Three others who had been appointed as "extras" were rejected without further consideration, having intelligence quotients that indicated "intellectual feebleness!" None of the applicants had completed a high school education. The investigator mentions the fact that California teachers would reach in general a much higher level of intelligence than the successful candidates for the position of fireman, tho the average wage would probably be much lower. A comparison of intelligence quotients with the impression gained by general appearance, etc., showed that one Irishman was rated much higher on appearance and social affability than his intelligence warranted.

Dr. Helen T. Woolley, Director of the Cincinnati Vocation Bureau, has made extensive tests on working children. Mental tests of children who left school and commenced work indicated that they were mentally inferior to those who continued in school. Among

<sup>1</sup> Terman, L. M., "A Trial of Mental and Pedagogical Tests in a Civil Service Examination for Policemen and Firemen," *Journal of Applied Psychology*, vol. 1, pp. 16-27 (1917).

children who left school after the fifth, sixth, and seventh grades, no differences were found in wages received corresponding to presumed differences in mental ability; but investigation did prove that those who dropped out earlier and who showed a lower mental capacity on being tested, found difficulty in keeping their positions. The less intelligent formed a shifting class of labor.<sup>1</sup> An interesting sex difference was discovered. The less well endowed of the boys had the poorer and less well paid jobs: for boys of fourteen the median wage was \$3.75 for the group that "failed worst," as compared to \$4.10 for the group that did best; for boys of fifteen the medians were \$4.75 and \$5.62 respectively. Among the girls the opposite was true. For those who stood lowest in the mental tests the median wage at fourteen was \$3.40 as compared to \$2.85 for those who stood highest; at fifteen, \$4.87 and \$4.43 respectively. Dr. Woolley explains the difference by the preference of the girls for the department store work, which, tho requiring greater capacity, is more poorly paid than work in the shoe factories.<sup>2</sup> The figures indicate that in fixing wages, employers give greater weight to age and experience than to general intelligence in case of children just commencing work.

An elaborate series of tests of intelligence made upon two groups, one a group of seventeen professors and advanced students at Columbia University and the other composed mostly of unemployed and charity cases showed great differences in intelligence, which corresponded to the differences in earning capacity.<sup>3</sup>

<sup>1</sup> Woolley, H. T., "The Issuing of Working Permits and Its Bearing on Other School Problems," *School and Society*, vol. i, pp. 726-33, especially p. 731 (May 22, 1915).

<sup>2</sup> Woolley, H. T., "A New Scale of Mental and Physical Measurements for Adolescents, and Some of Its Uses," *Journal of Educational Psychology* (November, 1915), pp. 12, 13.

<sup>3</sup> Simpson, B. R., "Correlation of Mental Abilities," *Teachers College, Columbia University, Contributions to Education*, No. 53, pp. 5, 6, 67-75.

A series of tests of ability to follow printed directions was given to hearing children, to business college students, and to a number of unemployed. The time required to complete the tests was lowest for the business college students, average 84 seconds; highest for the unemployed, average 309 seconds; and varied for children of different ages from nine to sixteen from an average of 178 seconds for children aged ten to an average of 123 for the sixteen-year-olds.<sup>1</sup> The unemployed required much more time to complete the test than the other classes, and in addition made a greater number of errors.

These studies are suggestive of the possibilities of the method of investigation. They offer a method of isolating the various factors that make up the personal qualities of labor and of correlating them with wages and other economic facts. It may prove possible to distinguish clearly and in quantitative terms the relative importance of native ability and of training and education in determining differences in wages. The results may enable the economists to discard the vague and unsatisfactory terminology of character description and permit them to substitute in place of it definite and quantitatively measurable intellectual traits. Such a step will be in line with that taken by criminology, of discarding the old, vague explanations of crime in terms of temptation and evil spirits, and testing mental condition. Pedagogy, in the treatment of backward and exceptionally bright children, is beginning to recognize the importance of native intellectual endowment or lack of endowment. Personal qualities have frequently been pointed out as a cause of unemployment of certain individuals: it may be possible to correlate unemployment in individuals with a low level of general intelligence.

<sup>1</sup> Pinter, R. and Paterson, D. G., "The Ability of Deaf and Hearing Children to Follow Printed Directions," *Pedagogical Seminary*, vol. xxiii, pp. 477-97 (December, 1916).

Further, inquiry of this kind will throw an interesting light on the question of the influence of heredity and of environment in determining success. Is social classification based largely on ability or on privilege? Are the barriers between the non-competing groups of labor largely or entirely based on differences of ability? Such studies of intelligence and social class as have been made indicate that the brighter children are drawn almost wholly from the higher social classes. Terman states that out of 476 unselected children there was not a single one reaching an intelligence quotient of 120 whose social class was described as "below average."<sup>1</sup> Occasionally a child from poor surroundings may be found to be of superior intelligence, especially from among immigrant populations or populations where opportunity has not been free to all. A study of school children of Columbus, Ohio, by Bridges and Coler showed that the children of professional men, traveling salesmen, and proprietors had a mental age one to two years above the chronological age, while the children of skilled laborers had a mental age slightly less than the chronological, and the children of unskilled laborers were nearly a year retarded!<sup>2</sup> Studies of the distribution of ability among unselected city children of Columbia, S. C., compared with children of a mill village showed that among the latter the proportion of backward children was much higher.<sup>3</sup> Mental tests of the capacities of Negro and white children indicate that among the Negro children the percentage of the intellectually subnormal is much larger and the proportion of bright children is much smaller than among the white.<sup>3</sup>

<sup>1</sup> Terman, L. M., *The Measurement of Intelligence*, pp. 95, 117.

<sup>2</sup> Bridges, J. W. and Coler, L. E., "The Relation of Intelligence to Social Status," *Psychological Review*, vol. xxiv, pp. 28, 29 (1917).

<sup>3</sup> Strong, A. C., "Three Hundred Fifty White and Colored Children Measured by the Binet-Simon Measuring Scale of Intelligence: A Comparative Study," *Pedagogical Seminary*, vol. xx, pp. 485-515, especially pp. 501-03 (1913).

Similar studies made of Indian children at Mount Pleasant, Michigan, show that there are greater differences between the white and Indian than between the white and Negro: that the percentage of backward children is even greater among the Indians than among the Negroes.<sup>1</sup>

One serious criticism might be made of these conclusions. In measuring intelligence care must be taken to select tests which shall include only those really measuring native ability. Tests the results of which are affected by knowledge or environmental conditions, if applied to children of the same mental capacity but of different social conditions, will show differences that favor those who have better environment. If then a series of tests show differences in favor of children from better social environment, it is necessary to prove, before drawing a conclusion that the children of the better social class have greater intelligence, that the tests are tests really of intelligence and not of environmental factors.<sup>2</sup>

This question has been investigated by several writers. Stern shows that some tests are better than others for differentiating between intelligent and unintelligent normal children, between normal and feeble-minded children, and between different grades of feeble-minded. The same tests that showed the greater intellectual differentiation between normal and feeble-minded also revealed the greater differentiation of

<sup>1</sup> Rowe, E. C., "Five Hundred Forty-Seven White and Two Hundred Sixty-Eight Indian Children Tested by the Binet-Simon Tests," *Pedagogical Seminary*, vol. xxi, pp. 454-48, especially 456, 458.

<sup>2</sup> For purposes of correlation with wages it does not so much matter if a few tests that measure knowledge or school training are included. For school training itself is probably correlated with general intelligence, and consequently a correlation of wages even with measures of school accomplishments would be a fair substitute for a direct correlation with measures of general intelligence. Fortunately, however, the evidence indicates that the tests really measure native ability.

children by social status.<sup>1</sup> Pintner and Paterson have shown that the Binet tests of naming the days of the week (omitted in the revision of 1911 by Binet) and the months of the year are dependent upon experience. Both of these were considered as nine-year old tests, i. e., the average child of nine could pass them. Two groups of feeble-minded persons were taken, one with chronological ages of less than fifteen and the other of over fifteen; in the latter group a larger proportion of individuals of each mental age ranging from three to eight passed the test than passed among the first group at corresponding mental ages. "The results of the tabulation of these cases seem to point to the fact that as a feeble-minded person grows older his ability to pass these two tests increases."<sup>2</sup> In another paper they show that exactly opposite results are reached with the Cube test and with the Profile test. In this case feeble-minded adults over twenty-one who tested mentally at ages ranging from five to eleven showed lower capacity to perform these tests than children fourteen years of age or below testing at the corresponding mental age. The explanation is that the adults had been rated mentally too high because of the inclusion of some tests that involved experience in the determination of mental age,<sup>3</sup> but that these particular tests are really tests of intelligence.

The most significant evidence on the question is that given by Dr. Woolley. If tests made upon school children are tests of native ability, then differences in school grade of children of equal ability are probably

<sup>1</sup> Stern, W., *The Psychological Methods of Testing Intelligence*, tr. by G. M. Whipple, pp. 97, 98 (1914).

<sup>2</sup> Pintner, R. and Paterson, D. G., "Experience and the Binet-Simon Tests," *Psychological Clinic*, vol. viii, pp. 197-200, especially 198 (December 15, 1914).

<sup>3</sup> Pintner, R. and Paterson, D. G., "The Factor of Experience in Intelligence Testing," *ibid.*, vol. ix, pp. 44-50 (April 15, 1915).

due to and may be explained by differences in environment. But if the tests are tests of environmental factors no marked differences between the tests made and grade in school would be expected. Dr. Woolley says:

On this assumption we reasoned that the fourteen year old children whose tests showed good native ability, but who nevertheless had completed only the fifth grade, must have had unfortunate social circumstances which caused retardation in school, in spite of their superior endowment; while the group whose tests showed poor native ability, but who had nevertheless completed the eighth grade at fourteenth years, must have had favorable social surroundings which assisted them through school in spite of inferior endowment. In order to test this hypothesis, we looked up in our files the records of the physical and educational history, and of home conditions of these exceptional children. We found our hypothesis absolutely verified. . . . Of the well endowed children from the fifth grade, one had been retarded by illness. This child had a good home, and good parents, but she had had in the course of her fourteen years spinal meningitis, smallpox, typhoid fever, scarlet fever, measles, and several minor diseases. She is the only child in this group who had a good home. In other cases a father had been lost through death or desertion; in some the mother was a wage-earner outside the home; in most the family was constantly moving; in only two families was the father living, one a saloon-keeper, and the other an old clothes dealer. The social conditions of the poorly endowed children in the eighth grade was uniformly good. In practically all cases the father was the wage-earner; not one mother was a wage-earner outside the home. Over half of the families owned their homes, while none of the families with well endowed children in the fifth grade did. Most of the mothers were interested in education, and the children in most cases did not have to do any work out of school. "To find the apparent anomalies in the estimates made by the scale so uniformly explicable on social grounds is an important piece of evidence in favor of the reliability of the scale as a measure of native mental ability."<sup>1</sup>

Studies of general intelligence, if carried far enough, may offer a sound basis for vocational guidance. Mental tests may be made to determine the average degree of intelligence required of motormen, of ditch-diggers, of

<sup>1</sup> Woolley, H. T., "A New Scale of Mental and Physical Measurements for Adolescents, and Some of Its Uses," *Journal of Educational Psychology*, November, 1915, pp. 6-8. See also, Terman, *The Measurement of Intelligence*, chap. 7.



locomotive engineers. Dr. Woolley suggests that manual dexterity may or may not be correlated with intelligence, and that a study of relative aptitude for mental and manual work might be used for vocational guidance. A boy who was intellectually below par but who had some manual dexterity ought to be given industrial training. Education should be adapted to the capacities of the individual.<sup>1</sup> Pintner and Paterson, in a study of the language ability of deaf children, point out the poverty of their language attainments, very few reaching more than fourth grade ability. It follows as a corollary that education of the deaf ought to be directed along lines of manual or industrial training where they are relatively not seriously handicapped instead of into the study of languages and literatures like English and Latin, in which they are notably deficient.<sup>2</sup> Special aptitudes along special lines may be discovered by special tests. Whipple suggests, for example, auditory tests for telephone operators, tonal discrimination for children studying music, etc.<sup>3</sup> Most of these tests will permit only of negative conclusions: the general level of intelligence requisite for success in a given vocation may be determined, and persons without sufficient endowment of intelligence can be advised against undertaking employment where they will almost certainly fail.<sup>4</sup>

Mental tests will probably have wider application in the selecting of employees by employers. The best candidates among applicants for a position may be selected by means of tests of general intelligence. Pro-

<sup>1</sup> Woolley, H. T., *A New Scale*, p. 14.

<sup>2</sup> Pintner, R. and Paterson, D. G., "A Measurement of the Language Ability of Deaf Children," *Psychological Review*, vol. xxiii, pp. 424-29.

<sup>3</sup> Whipple, G. M., "The Use of Mental Tests in Vocational Guidance," *Annals of the American Academy of Political and Social Science*, vol. lxx, pp. 193-204 (1916).

<sup>4</sup> Terman, L. M., *The Measurement of Intelligence*, p. 40.

gressive employers are looking for some method of selection that is not haphazard; if they have to give employees a course of training, as is true in many employments, such as telephone exchange or electrical work, they wish to be sure that they are not wasting the training on those who will not be able to do what is expected of them. Whether general intelligence tests are the best for a particular kind of work or employment can be determined only by experience. For some kinds of work it is possible that special tests would be better or that supplementary tests would be necessary. The value of these tests is that they are standardized and the results can therefore be better interpreted. Tests might be applied to all candidates for civil service positions; and it has been suggested that they might be of great value in selecting recruits for the army.

It is doubtless premature to attempt a formulation of the relation of wages and intelligence on the basis of the meager evidence thus far available. Possibly it might run as follows. There is a tendency for wages in a given occupation to vary with the degree of intelligence; but in the early years of employment age and experience appear to have more weight. Occupations can be classified with reference to the amount of intelligence required. The supply of labor in many occupations is limited by the supply of labor of requisite intelligence available. Frequently there are strong preferences on the part of intelligent labor for particular kinds of work, and the wages in these desirable occupations are correspondingly reduced. These preferences may be revealed through correlations of intelligence and wages by occupation. Education and training may prove to be more directly correlated with wages than is general intelligence; but it is probable that the degree of education and training that can be taken with advantage is

directly dependent upon native ability. Other personal qualities that still remain unmeasured — the moral traits of honesty, faithfulness, dependability, and personal habits that might affect the availability of men for special work — may possibly prove to be correlated with general intelligence. Differences in wages due to differences in health and physical efficiency, differences due to political and industrial privilege and "pull" may be more definitely measured after differences due to mental ability and training are eliminated.

Only a beginning has been made. We need more measurements and correlations of intelligence with various economic factors. We should keep in touch with the work of the psychologists in developing and applying these tests. We need to reexamine and test our conclusions by a close study, aided by this new method of measurement of intelligence, of the facts and processes of our industrial life.

ROBERT M. WOODBURY.

UNIVERSITY OF KANSAS.

## REVIEW

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### KLEENE'S PROFIT AND WAGES<sup>1</sup>

THIS little volume may fail to receive from economists the attention which it deserves. It is unpretentious in size and in general plan; and plenitude of pages and elaborateness of plan are apt to go far in attracting notice and in establishing reputation. There is here no ostentation of erudition, yet abundant evidence of careful study and matured thinking. The incidental remarks on such writers as Landry, Schumpeter, Oppenheimer, Bortkiewicz and Graziani show that Professor Kleene has read widely and critically. It is perhaps significant that he does not give chapter and verse or even mention names when referring to the theories of English and American writers. This may be due to a modest reticence, possibly to a belief that every person who will look into his volume at all will be familiar with the literature of our tongue. No conversant economist will fail to see what doctrines and writers are discussed.

Professor Kleene's exposition throughout is brief, yet clear and straightforward, and his conclusions are stated with sufficient fulness. What is said in the introduction upon the methods of economic science, and more particularly on the methods applicable to theoretical inquiry, is excellent. There is also discriminating restraint on the significance of any inquiry on these topics; as Professor Kleene remarks (p. 107), a discussion of the theory of interest takes "only a small and inadequate view of the problem raised by socialism." The plan of the work, in brief, is to take up in a few introduc-

<sup>1</sup> Profit and Wages. A Study in the Distribution of Income. By G. A. Kleene. New York, The MacMillan Co. Pp. iv, 171.

tory chapters, the general theories of interest now in vogue, these being in order, Böhm-Bawerk's theory, the time preference theory, the abstinence theory and the productivity theory; then follow three chapters in which the author's own view of the case is presented; a concluding chapter gives a summary.

The critical treatment of the theories of others in the earlier chapters is excellently done. If one does not always agree, disagreement must be accompanied with respect for the acuteness and justice of the main criticisms. I am not sure that Böhm-Bawerk's theory of interest is a "unitary" theory. True, that scholar's reasoning proceeds mainly on the lines of our old friend, "technical superiority"; nevertheless, a sympathetic interpretation of his doctrines leads to our equally familiar friend, "preference for present goods," and warrants a more catholic statement of Böhm-Bawerk's views than his own exposition might justify. At all events, I doubt whether a sharp line of distinction can be drawn between Böhm-Bawerk's theory on the one hand, and the two rival theories of "time preference" and "productivity" on the other. His, after all, is a mixture of the two. So far as concerns "time preference," that notion does not seem to me so sharply distinguishable from the "abstinence theory" as Dr. Kleene maintains. The two are, after all, variants of the same fundamental conception. The specific productivity theory, which comes last in the critical exposition, is disposed of effectively, and indeed, has been so effectively criticized by other writers of one school and another, as hardly to leave it an important place in the present stage of theoretical discussion.

To time preference, abstinence, and the like, Dr. Kleene concedes some influence on the accumulation of capital, but denies a dominating influence. There are indeed passages which seem to imply a more unqualified rejection of this notion: "the time preference theory is a remarkably consistent piece of theorizing and therein doubtless lies its great attraction. But it is spun out of nothing" (p. 53). Yet almost at once it is added that time preference may have an influence

on saving, lending and borrowing. What Professor Kleene really denies is that the expectations, hopes and fears suggested by the phrase "are sufficiently definite and powerful to be given a place in a carefully formulated general theory of the rate of interest." And similarly Professor Kleene, while agreeing that the abstinence involved in saving is one among the factors that serve to explain the existence of interest, contends that it goes little way toward explaining the amount of interest received. So much doubtless is to be admitted. Perhaps, too, it is to be admitted that the marginal savers, or marginal savings, are relatively unimportant. Professor Kleene frankly says that in conclusions of this sort we can be guided only by our general impressions and it is on the basis of such impressions of his own that he argues well and strongly that abstinent marginal savings are relatively inconsiderable. On the other hand, he seems to me to go altogether too far in urging that great stores of capital are now made and maintained "without thought and effort," and that capital may almost be said to accumulate itself (p. 68). This comes perilously near to the doctrine which appears in Professor Clark's *Distribution of Wealth*, and which seems to me quite untenable—that capital maintains and perpetuates itself in some automatic way, quite independently of the owner's state of mind. The circumstance that a thing is habitually done, and done without immediate consciousness of the actuating motive, by no means proves that the habit would persist and the thing would continue to be done if the motive were removed. It is true that people ~~set~~<sup>save</sup> and to maintain their accumulations intact, without ~~thought~~<sup>thought</sup> and without intent, in quite mechanical fashion. Yet I take it that attentive reflection on their course of action under the conditions of entire absence of interest would make it clear that the maintenance of individual accumulation on any great scale would then be unlikely, indeed unthinkable.

Professor Kleene's own view, stated in the later parts of his book, may be described as a revised and revamped version of a revised and revamped wages fund theory. The revised form of the unpopular doctrine is that suggested by the writ-

ings of Böhm-Bawerk and apparently also by my own *Wages and Capital*. It gives me satisfaction to find that so acute a thinker as Professor Kleene accepts the general analysis which is contained in my volume, and is not afraid of the term "wages fund"; tho I am bound to say that this term now seems to me of doubtful expediency. The essentials of the explanation there given of the mechanism by which wages and profits are determined seem to me no less valid than they did a generation ago. Professor Kleene takes the same view, namely, that the proximate influence determining the general range of wages is the quasi-mechanical impact of total wages fund, or profit-seeking free funds, against the total supply of laborers. His independent contribution relates to the conditions under which the second item, the supply of laborers, is forthcoming. In general outline, as he expressly states, his doctrine is very similar to that of Ricardo and Ricardo's school — and of Marx also. It make no distinction between interest and business profits; it is concerned with "profit in the sense of a residual income remaining in the hands of the capitalist class as a whole after they have hired the laborers and secured whatever the laborers produce over and above the amount paid out to them." But as regards the factors which, in the long run, influence the supply of laborers and so the outcome of this special kind of bargaining, he introduces a modification. The Ricardian view, it will be remembered, was simple enough; the supply of laborers was determined by a fixed and probably low standard of living, and increased or decreased in such way that the laborers received in the long run the wages which their low standard of living called for. So much is still true, Professor Kleene maintains, in backward communities like those in Central Europe, or at least those parts of Central Europe not yet influenced by modern industrial conditions. Here the Malthusian view of "natural" wages still holds good. But in the capitalistic countries, like the United States, England, Germany, France, no such version of the case is tenable; and indeed no one would now say that the vital statistics of these countries confirm anything approaching this older doctrine. Yet Professor Kleene argues



that a modified or revised application of it is still tenable. Wages in the United States are determined not indeed by any fixed standard of living among the American laborers, but — by the standard of living, the “natural” wages, of the immigrants who bring with them the standard of the backward parts of the old world. The specter of immigration and of a standard of living debased by immigration hovers in the background of Professor Kleene’s picture almost as much as in that of some anti-immigration extremists. The general rate of wages in the United States, he believes, is determined fundamentally by the price of unskilled labor; and this in turn is determined fundamentally by the last considerable addition to the number of such laborers; and the supply price of these again is settled by conditions outside the capitalistic region itself. The wages of unskilled laborers in the United States are based on the standard of living in the countries whence the immigrants mainly come — Italy, Austro-Hungary, Russia, the Balkans; with a sort of differential or premium resulting from the expenses of immigration and perhaps the deterrent effect of distance and unfamiliarity.

I confess this seems to me untenable, or at all events, pushed quite too far. No doubt the general trend of wages in the United States has been greatly influenced by the large volume of immigration and by the increased supply of laborers due to immigration. But the rate can hardly be said to be fixed by an old world standard, even with a differential super-added. It would seem obvious that the reasoning is not applicable to countries like Germany and Great Britain. These also, according to Professor Kleene, have reached the stage where the Malthusian and Ricardian formula is not applicable to the supply of labor, as he thinks it is in the countries more to the eastward and southward. In Germany and Great Britain, according to Professor Kleene’s own doctrine, we find capitalistic conditions essentially similar to those in the United States; and we find also no “natural” rate of wages. In these countries, since there is virtually no influx of immigration, there can be no determination of general wages by the imported standard of living among the immi-

grants. The special prominence of the problem of immigration in the United States causes this factor to loom up unduly in Professor Kleene's general explanation. His "supply price of labor" for the United States is by no means made out as satisfactorily as he would have us believe. After all, the outcome of his reasoning, for this country as for the others of "advanced" civilization, would seem to be that of an impassive unregulated impact. The settlement of wages and profit becomes simply a matter of the gathering accumulation of investment meeting the gathering number of laborers, with no ultimate determinant of wages or of profit and no "normal" return for either.

Perhaps some such agnostic doctrine as this is what we must come to. If we give up the notion of a regulating rate of "time-preference," or the similar one of a minimum return necessary to induce abstinence and saving, we have no "normal" rate of interest. And if we give up also the notion of any "natural" wages settled by a standard of living, what have we left? Specific productivity cannot be demarcated; and the productivity of industry at large bears merely on the national dividend as a whole, not on its apportionment between the different factors of production. Nothing seems to be left but the Ricardo-Marx conception — this admittedly is Professor Kleene's — of a surplus, essentially fortuitous, grabbed by those who now control industry, and soon to be seized (the suggestion lies at hand) by those who are rapidly acquiring control.

F. W. TAUSSIG.

HARVARD UNIVERSITY.

## NOTES AND MEMORANDA

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### THE CONTENT OF THE VALUE CONCEPT

THERE has been a persistent endeavor among economists to establish unique definitions for their more important terms, and many seem to feel that success in this endeavor can alone justify the claim of economics to consideration as a science. An exact and uniform terminology is so characteristic of the experimental sciences that it is assumed that economists must needs do likewise. The diversity in the usage of the words value, capital, price, rent, interest, profits, is ruefully contemplated by nearly all; some still struggle against this seemingly unscientific lack of precision in essential abstract concepts and categories, others have already reconciled themselves to the difficulty and accepted these diversities as a necessary evil.

Judgment of this situation turns upon one's conception of the position of economics among the sciences. Other scientific investigations, whether in the physical or mental sciences, can impose arbitrary limitations which are of the utmost moment. A particular type of phenomenon is isolated and studied *as if* it were independent. No attempt is made to study reality in its entirety, and consequently an arbitrarily defined body of material is set off which can be treated according to rules laid down by the investigator. Terms and categories can be invented freely because the whole subject of research is itself an heroic abstraction. Economics, however, cannot follow a similar procedure, because arbitrary limitations cannot be established. All thinking imposes some isolation of the problems set for analysis, but in economics no particular limits have been permanently established. Interest in different problems set for given a great diversity to economic analysis; some writers desire to exclude by rigorous abstraction the

problems which are of primary interest to another group. The field of investigation cannot be satisfactorily described in any terms that will meet with general accord among economists, and this impossibility of agreement as to the limits of the field destroys all hope of a universal terminology.

The economist must approach his linguistic problems more nearly in the spirit of the literateur and philosopher. It is not his business to invent technical terms. Like the artist or philosopher, he must discover new content in the ideas and emotions common to all. Few, if any, of the major concepts of economics are themselves new or unusual. Some vague meaning is conveyed by value, rent, interest, or capital, and, while many of these notions are seriously confused by popular fallacies, the economist in correcting the common sense notions really does no more than give adequate expression to things previously seen through a glass darkly. Furthermore, a moderate perusal of dictionaries and handbooks will show that economists have done no more than enlarge or restrict the content of meaning attached to these terms. Vague connotations have been analyzed with care and new aspects of meaning discovered.

Compare the citations under "value" in the *New English Dictionary* with the diversities familiar to any reader of economic treatises. Nothing could afford a clearer illustration of the enrichment of the meaning of this abstract term. The sophisticated economist finds much in this well worn concept that was not known to his forbears, and yet it would be unfortunate to presume, as many do, that there is no significant relation between his ideas and the naïve thinking of earlier generations: most unfortunate, to conclude that sophistication could properly become a means of narrowing the meaning of such a word and reducing the diversities of the older usage to the rigid formulation of a mathematical definition.

The task of arbiter of good usage is a thankless one, and dangerous withal. Both friends and enemies are prone to investigate the qualifications of the arbiter with a degree of care that is likely to prove embarrassing. It is therefore an

act of wisdom to disclaim any intention of drawing up a classification of these meanings that shall pose as authoritative usage. It is intended merely to suggest that it may in the end prove more helpful if we as economists endeavor to establish some standards of good use for these diverse meanings and abandon the search for the unique and universal definition.

Beneath all the varieties of usage there lies one fundamental problem; whether we shall speak of this concept in a philosophical sense or follow a purely empirical policy. To the empiricist value is a fact or quality. Ruskin remarks that it is "the life-giving power of things." But this is surely bad. We live in worlds created by our thoughts and there is little defense for the attempt to evade the admission of human judgments into these matters of valuation. Values are attributed to things by men, and by reasonable logical method we may fairly describe them as judgments: judgments of desiredness, of scarcity, or judgments of some relation between wantedness and scarcity. The Austrians have taught us the doctrine of relativity, and, whatever their failings, it is no small achievement to have diverted attention from the search after that elusive essential quality in things which both classical economists and socialists thought of as a fact.

The term judgment connotes a deliberation of effort that is associated with the most persistent popular usages of the word "value." Beneath many diversities there lurks a notion that the value of a thing is what it is "really worth." It appears in the common antithesis between value and price: price is what you pay or what you get, value is what the article is really worth. The value judgment is presumed to be accurate. In the language of Adam Smith, every man is presumed intelligently to seek his best interest, and while it is sufficiently evident that the ideal is not attainable, there is clear disposition on the part of most writers to assume perfect competition and adequate intelligence. The value judgment is thus specifically characteristic of a sophisticated society, involving a degree of thinking about things that would be foreign to primitive peoples. In all its connotations, then, the

term "value" suggests a society in which the material problems of life are given deliberate and thoughtful attention. It may be that some vague sense of the worth of objects is present among the most primitive peoples, but it is not to be assumed that they are concerned with values. In the course of much subjective analysis primitive peoples and barter economies are frequently drawn in question, but it would seem that many dangers are incurred by reading into primitive life ideas that are held with clearness only in a developed society. In fact, the entire validity of the position of the extreme subjectivists turns upon the validity of abstracting out of their illustrations the mechanism that is requisite to the sophisticated society whose ideas they seek to analyze.

The value judgment may be described, defined, or analyzed from a variety of points of view: in terms of the mode of expressing the judgment, in terms of purpose, in terms of the process by which the judgment is reached, and in terms of a presumed absolute measure of value. The analysis of the process of valuation is hardly older than the organized study of economics, but the meanings which are associated with the other points of view reach far back into the past and constitute a significant appeal for wide catholicity in the study of the usage of the word. With the exception of the last named of these modes of approach, meanings of value may be derived in each case that are valid for certain problems.

The search for an absolute measure of value, whether in utility, cost, or labor, is nearly, if not entirely, discredited at the present day. The notion of a normal price derived from such analysis still survives, but it is not easy to be certain that the notion plays any very significant part in our actual thinking. In the elementary texts it appears as one of the things that a beginner should know and then it disappears. It is hard to avoid the feeling that the whole discussion is sterile. Much of the old analysis, however, assumes a significant place in the discussion of the process of valuation and becomes exceedingly important in the reestablishment of the mental poise so rudely shaken by the aggressive attack of the psychological school.

Controversies that have developed out of the analysis of the process of valuation, and the amount of space necessarily given to any careful description of the process, have tended to give the discussion of valuation an exaggerated place in the general theory of value. The purpose that lies behind a judgment is hardly less important than the process by which the judgment is reached, and yet there is usually little significant discussion of the purpose of the value judgment. The relative importance assigned to these points of view is practically the decisive factor in reaching an opinion as to the preponderance of individual choices or social purposes. If one feels that the process is the more significant basis of definition it is scarcely possible to resist the conclusion that the logical priority of subjective elements in valuation renders them more essential. Even if an objective exchange value is recognized, it is subordinated to the notion of subjective value, which is represented as more essential. The opposite view prevails if purpose seems more important than process. Value then appears to be primarily "a power in motivation," as Anderson says; a means of coördinating activities and of adjusting consumption to available supplies. It becomes significant therefore only in so far as it serves as a check upon individual caprice and serves definitely as a form of collective pressure upon the individual. A facile writer can easily make out a case for the essential importance of the objective purpose of the value judgment. Can we not deplore the persistence of controversy between subjectivists and objectivists? It has been a fruitless debate, in which the issues have never been squarely joined; resulting, nevertheless, in much careful analysis which leads to complementary rather than antagonistic conclusions. The subjective foundation of the process of valuation does not in any respect disprove or gainsay the objective significance of the achieved judgment.

The value concept has one other aspect which is perhaps derived directly from this motivating function or is perhaps merely a kindred notion: the value judgment is thought of as the norm or standard of the concrete price offers of daily life. This idea appears in a variety of distinct forms, and because



of the implied antitheses with current prices many confusions can be traced to this source. The idea of a "just price" turns upon the assumption of the possibility of a more perfect correlation of factors in valuation than is currently achieved in society. The notion of "normal price" is little more than the medieval notion in a new garb: a more refined conception no doubt, but in essential features the same idea. The chief difference between the scholast and the classical economist was the latter's faith in the effectiveness of unfettered competition.

The notion described by Jevons as "the perfect price" presents a distinctly new phase of the normative elements in the value concept. The "perfect price" is to be thought of in a moving equilibrium. The normal price must needs turn upon a correlation between actual prices and some supposedly essential measure of value, whether utility, cost, or labor. The perfect price merely implies that the higgling of the market takes place without any errors of judgment among buyers and sellers who have no illusions as to their wants and needs.

Monetary problems, particularly changes in general price level, bring up one more normative problem — that of the standard of deferred payments (closely akin to the old "ultimate standard of value"). In this connection the necessary abandonment of money as an intermediary seems to give us the most fundamental meaning of value and the most specific antithesis between value and price.

As concrete problems of usage we thus have the following meanings associated more or less advisedly with the word "value": exchange relations of any good for other goods; the perfect price; a power of motivation; a process of valuation sometimes described as a process of "price making," sometimes as a process of "value determination," and the obsolescent notion of a normal price. Linguistic difficulties are largely created by the vague line of demarcation between price and value.

The ambiguities in the usage of price and value with reference to the process of valuation can certainly be avoided, as

some distinction can surely be drawn between the pure abstract discussion of the underlying principles of the process of valuation and the notably different problems of actual marketing. In the abstract discussion, perfect competition can be assumed, and even must be. It is of more moment to secure a complete description of the various factors in valuation than to measure their intensities. In the actual market, the essential task is precisely this judgment of relative intensities; nothing could be more unreal than the discussion of a supposed market in which all the facts are known and all the traders intelligent. The frequency with which the phrase price-making or its equivalent is applied to purely abstract discussions of valuation serves to conceal the incompleteness of a theory of valuation which does not even endeavor to deal with all the actualities of commercial life.

The serious confusion between value and price seems to arise largely from the disposition to believe that any exchange relation expressed in terms of money must needs be some kind of price. Hence, the persistent use of "price" without any qualifying adjective to indicate the sense of "perfect price." One of the most common instances of this usage occurs in the supposed axiom, "in a given market at a given time there can be only one price." The most cursory inspection of a ticker or of the produce exchange records is enough to reveal the inaccuracy of expression, and few texts are free from ingenious and devious attempts to evade the conclusion that is suggested by the discrepancy. The readiest solution of all these difficulties is the frank use of "value" to describe the idea of a "perfect price." This usage can be defended both on logical and upon historical grounds. Logically, it is merely one of two aspects of the normative meaning of value, and each of the two meanings has its legitimate place. The "perfect price" serves as the standard of current exchanges; whereas the idea of a standardization with reference to deferred payments is an expression of the need of a "perfect" monetary system. The two are different aspects of the same idea of a wholly accurate judgment of worth, and no abstract reasoning can make out a better case for the one meaning

than for the other. Historically, the two meanings have always been present in the language since the fourteenth century. Tho the references cited in the *New English Dictionary* leave much to be desired, they seem to show a catholicity of usage among other writers in which economists might easily find a solution of many of their own difficulties.

The discoveries of new content in old concepts inevitably results in a temporary narrowing of interests and not infrequently in a certain loss of tolerance for interest in other aspects of the concept. The advance in analysis is secured only at the price of concentration upon special aspects of the general problem. These tendencies, so clear in religious and philosophical literature, are scarcely less evident in the rapid advance of economic thought in the past century. The specializations of interest appear in every part of the field. The problems of capital and rent, as well as the general problem of value, have gained from these enrichments of content, yet at the expense of catholicity of view and tolerance of the aspects of the general problem that appeal to other writers. It is hard at first to realize that the new thinking supplements the old instead of supplanting it. When one's mind is still concentrated on one particular analytical problem, it is hard to remember that the other fellow's problem is likewise a valid problem. But now that the intensity of controversy is subsiding, may we not hope for a new kind of interest; an interest that is concerned with general and comprehensive statement and not exclusively devoted to special analysis?

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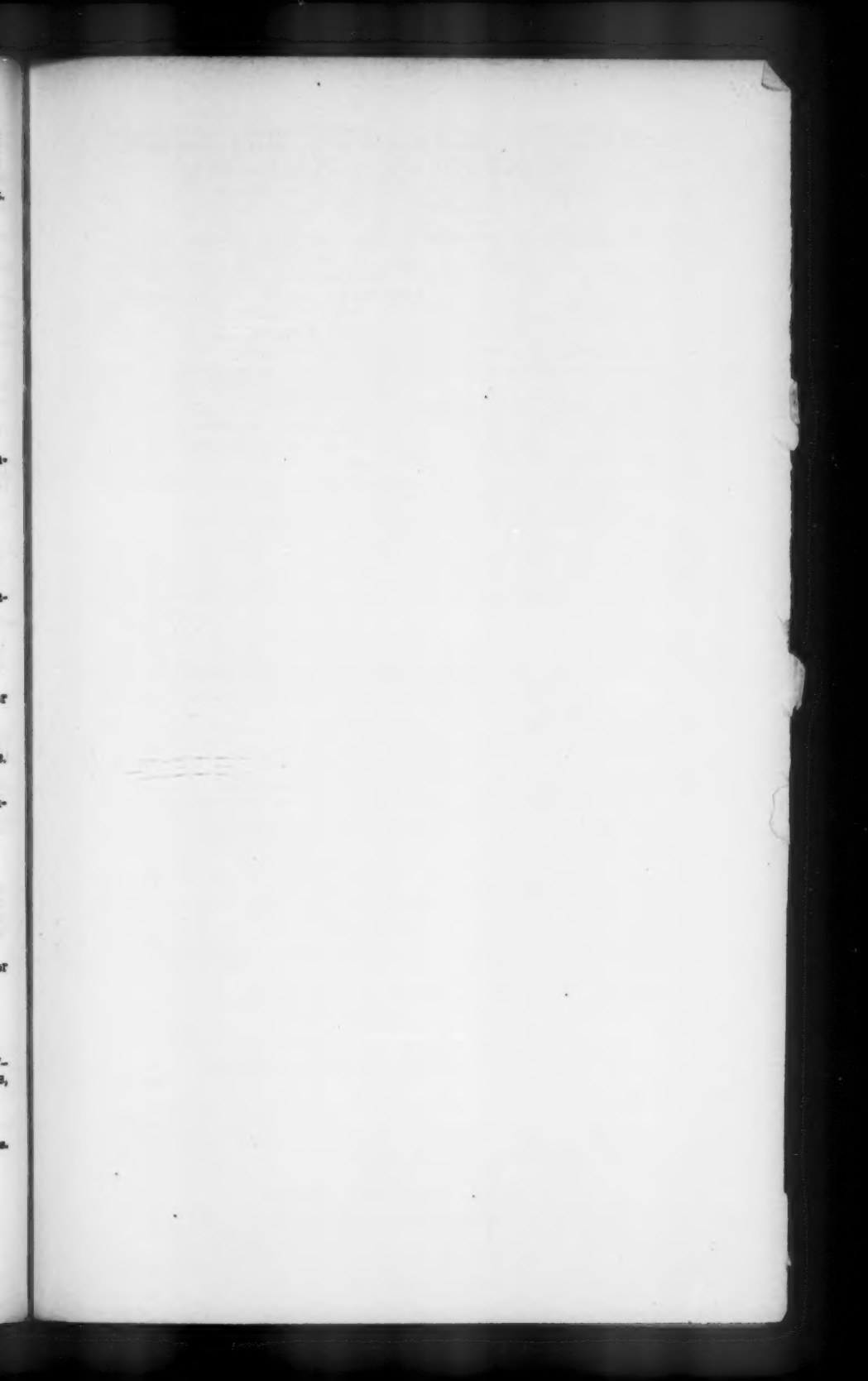
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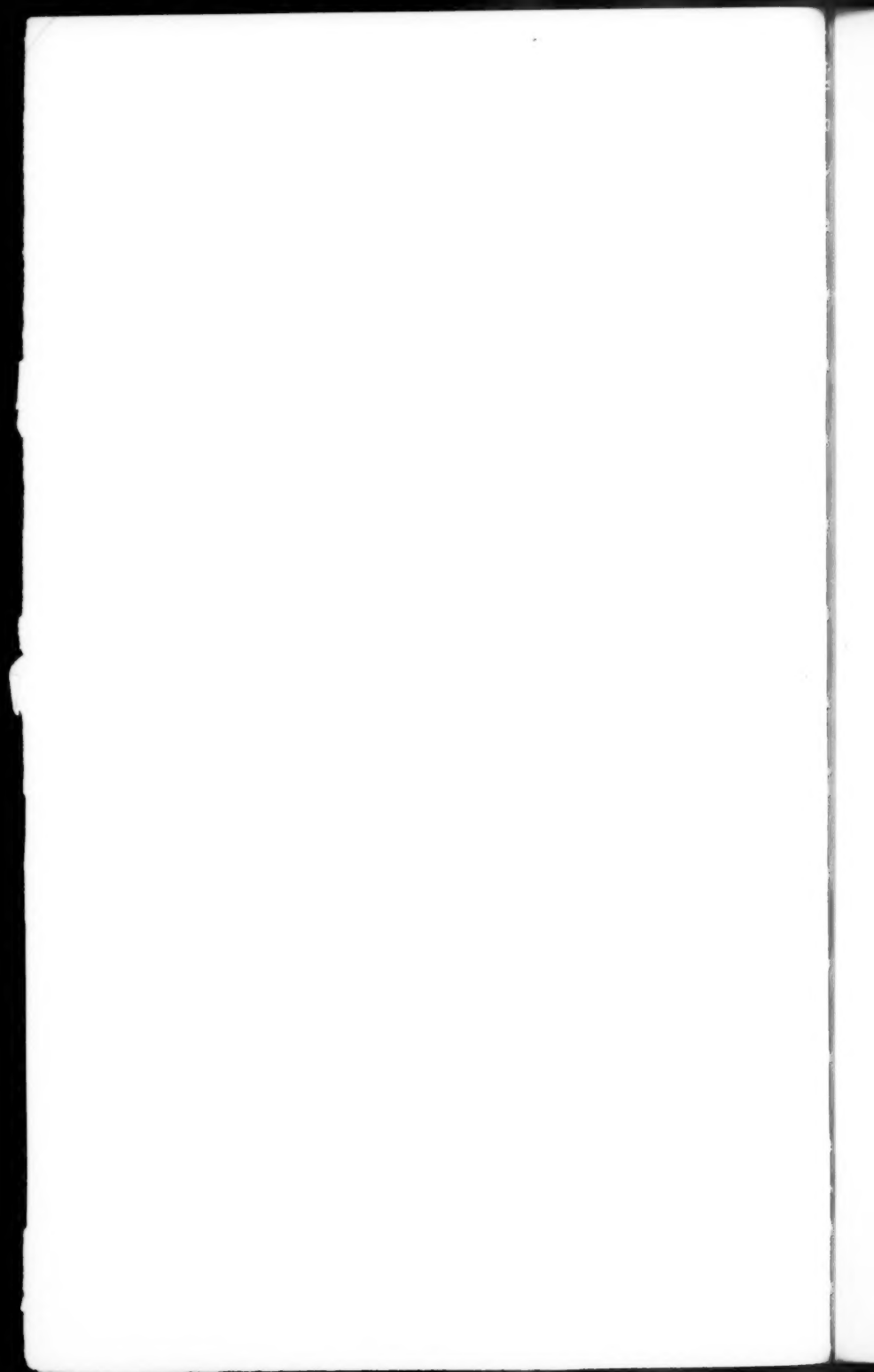
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